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RHEUMATIC FEVER

HEKTOEN LECTURE, BILLINGS FOUNDATION *

HOMER F. SWIFT, M.D.

NEW YORK

Rheumatism has long remained one of the riddles of medicine. In recent years there has been a marked awakening of interest in this subject, as indicated by the organization of new societies, both national and international, for the study of different phases of the problem. As the incidence of other diseases is decreased, the economic importance of rheumatism appears in sharper outline. It cripples the leg of the laborer on the soil and the arm of the toiler at the bench, and charts a life of cardiac invalidism for his child. In addition to its humanitarian emotions, modern society realizes that sound health of its members is an economic requirement; hence maladies that not only decrease the earning capacity of some of its units but increase the burdens of others eventually attract the attention of all. Consequently on us as physicians and investigators is placed more emphatically at this time the special onus of decreasing the depredations of this group of diseases.

Among the bewildering details of so large a subject one may hope in a single communication only to indicate what appear to him to be the immediate problems. It is, moreover, necessary to select some one portion of the whole subject as a center from which to proceed and as a landmark to which one can occasionally return and take up new lines for consideration. I have selected rheumatic fever as such a center.

MEANING AND SCOPE OF THE TERM RHEUMATIC FEVER

In the minds of most laymen and many physicians the term rheumatism indicates pain, tenderness and stiffness in the muscles and joints, and a condition of disability due to these symptoms. Probably this idea will persist, but the derivation of the word rheuma, rheo, to flow, which arose at a time when the humoral theory of disease was prevalent, probably suggests a more precise conception of its essential characteristics. Especially is this true of the condition known as rheumatic fever, for we appreciate more and more that its nature is to flow in the blood stream, not only from joint to joint but also to many other structures. An indication of a change in mental attitude toward this disease is shown in the tables of vital statistics in which within thirty years the category acute articular rheumatism has been changed to acute rheumatic fever. But the American Heart Association [1] has proceeded one step further and dropped the adjective acute. Such a step is reasonable for, no matter how little we appreciate it, the continual use of a qualifying word in the description of a disease will eventually alter our attitude toward that condition. For example, the term parasyphilis was long employed to describe the nature of tabes dorsalis and paresis; but when the essentially syphilitic nature of these conditions was established and it was shown that the spirochetes were active, there arose a different point of view with regard to treatment; and the prospect for the patient changed from one of progressive darkness to anticipation of arrest for the tabetic patient, and to more prolonged periods of normal usefulness for the person with paresis. In a like manner our attitude toward the patient with rheumatic fever will alter if we drop the word acute and regard every case as potentially, if not actually, chronic, and consider those features regarded by so many as complications rather as essential manifestations of the infection. It is not improbable that if we as physicians could encounter the disease for the first time with an open and objective mind such as we applied to the study of trench fever during the World War, we might devise some other name that would better describe the course of the malady. But in our studies we are both helped and handicapped by the work of our predecessors. Especially is this true when we consider the influence of the so-called antirheumatic drugs, for there is little doubt that although they render the patient more comfortable they alter the picture of the infection to such a degree that it is difficult to learn just what it would do in most cases if allowed to pursue its normal course. For such information we must consult the older literature, in which are recorded observations made without the aid of instruments of precision, and hence, from a modern aspect, incomplete. These older studies were also made before the advent of bacteriologic methods, for the introduction of salicylate therapy was contemporaneous with Pasteur. Consequently, included among the cases of acute articular rheumatism were doubtless many that would today be differentiated otherwise, as gonorrheal rheumatism, by bacteriologically establishing the presence of a gonococcus infection, or polyarthritis dysenterica, by the occurrence of a preceding bacillary dysentery.

Nosographically our process of placing an individual case in the category "rheumatic fever" must pass over much the same ground that has been traversed in synthesizing the composite picture of the disease: there is a continual process of differentiation; for, lacking a

* Read before the Institute of Medicine, Chicago, March 29, 1929.

* From the Hospital of the Rockefeller Institute for Medical Research, New York.

1. Criteria for the Classification and Diagnosis of Heart Disease, New York, Paul B. Hoeber, 1928.

demonstrated specific etiologic agent, we have been forced to eliminate one by one conditions with established causation. The residue comprises the material from which we construct our picture. But the picture is not static; it moves; and only after we have recorded

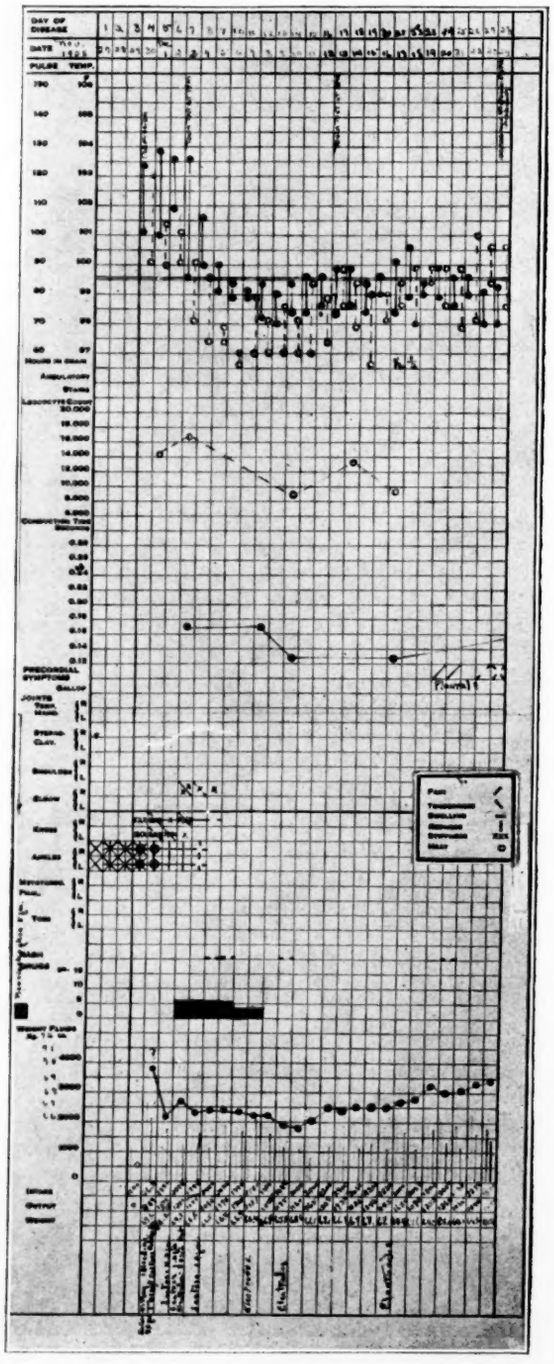

Fig. 1.—Monocyclic polyarthritis with mild pleurisy as a sign of relapse in the fourth week. Each vertical column represents one day; high and low temperature for a day is shown by the solid line; high and low pulse rate for a day, by the broken line.

day by day the separate impressions, then finally synthesized them into a composite cinematograph, can we comprehend in part, at least, the diverse directions this peculiar disease may take.

DIFFERENT TYPES OF INFECTION

Let us proceed, then, to review briefly the different types of the infection. As simplest, we see the monocyclic, in which there is a rising fever with toxemia and drenching sweats for from six to ten days, accompanied by a migratory polyarthritis involving continually new joints for the same period, until practically all of the large articulations have been affected. With the cessation of new joint involvement the temperature begins to fall, until at the end of the second week both fever and arthritis have disappeared. The heart may not show any abnormalities except quickening in proportion to the fever; or a faint transitory systolic blow may be heard at the apex. At the end of three weeks, convalescence is established and the patient can quickly return to his work without demonstrable visceral impairment. Friedländer [2] records that about one third of his cases observed in the seventies of the last century showed a self-limited course of this type. It has seemed to me that salicylate therapy is most efficacious in this type of disease; and it is probable that today it includes a large number who are treated at home, often by self-medication with acetylsalicylic acid. But the short course is not always so simple as it appears, for often there occur a transient low grade fever and leukocytosis at the end of the third week, an indication that the patient has not established complete resistance with the first cycle (fig. 1).

In the majority of instances, however, instead of only a slight recurring pyrexia there is a return of polyarthritis with high fever and more marked evidence of visceral involvement. A certain number of patients have a second cycle of much the same nature as the first, after which they seem to have established an effective immunity and recover without further uncomfortable symptoms. There is little doubt that this polycyclic picture is often obliterated or masked by antirheumatic drugs; but if careful note is made of all unusual symptoms it will often be observed that a significant increase in the white blood count, more rapid pulse rate, transitory precordial pain, gallop rhythm or moderate joint pains give evidence of renewed activity.

Again, let it be emphasized that particularly in this class of cases our therapy often hides from both physician and patient the signs of continuing or renewed activity of the infection and gives to the latter a false sense of security; hence under these therapeutic conditions there is placed on the physician a special obligation to search for these apparently unimportant symptoms, for they are warnings not to be neglected. In still other cases the cycles, which seem to indicate an ebb and flow of balance between infection and resistance, are not limited to two, but recur time and again before complete recovery takes place (fig. 2). With each relapse there is more and more tendency for obvious evidence of cardiac involvement to appear. I repeat, obvious evidence, because careful electrocardiographic studies in recent years by a number of investigators [3] have shown that myocardial disturbances occur in this disease with greater frequency than in any other, and often are unaccompanied by other easily detectable signs of cardiac disorder. But careful documenting of symptoms and signs will often give a clue to the existence of these myocardial disturbances which is substantiated by electrocardiagraphic evidence.

2. Friedländer: Über den typeschen Verlauf des acuten Gelenkrheumatismus, Verhandl. d. Cong. f. inn. Med. **5**: 381, 1886.

3. Cohn, A. E., and Swift, H. F.: Electrocardiographic Evidence of Myocardial Involvement in Rheumatic Fever, J. Exper. Med. **39**: 1 (Jan.) 1924. Rothschild, M. A.; Sachs, B., and Libman, E.: The Disturbances of the Cardiac Mechanism in Subacute Bacterial Endocarditis and Rheumatic Fever, Am. Heart J. **2**: 356 (April) 1927. Levy, R. L., and Turner, K. B.: Impaired Auriculoventricular Conduction in Rheumatic Fever, Arch. Int. Med. **43**: 267 (Feb.) 1929.

In still other cases of the polyarthritic type there seems to be no established trend to the infection; but the fever runs a continual irregular course, and joints and viscera are involved in a manner that seems to indicate little if any evidence of the development of a general resisting mechanism on the part of the patient. Occasionally one encounters a patient with polyarthritis, chorea, carditis and subcutaneous nodules all occurring simultaneously (fig. 3).

VISCERAL MANIFESTATIONS OF RHEUMATIC FEVER

Following the usual custom, I have made polyarthritis and pyrexia the centers about which to group my descriptions of the disease; but it is becoming increasingly evident that inflammation about the joints is not necessarily an accompaniment of the infection. If the medical profession and the laity could completely rid themselves of the idea that "the patient had an attack of rheumatism from which he recovered, but now has a complicating endocarditis," a distinct advance in correct thinking about the disease would be achieved. For more than a century the importance of the visceral so-called complications has been discussed, but more recent studies have emphasized the fact that these visceral involvements are just as much part and parcel of the infection as is arthritis. Therefore, just as arthritis and fever may be present without obvious visceral disease, so may there be other manifestations of the infection without arthritis. Probably the most familiar example of this is chorea, which not infrequently occurs without any other of the so-called rheumatic series in children. Indeed, as one observes this disease in childhood, he is struck by the frequency with which one or another of the symptoms or signs of rheumatic fever may appear as isolated evidence of activity; and it may be that not until the passage of many years has the child shown enough different manifestations to permit a satisfactory establishment of the nature of its malady.

For example, my assistants and I recently observed a boy, aged 11 years, pass through what appeared to be a simple monocyclic bout of polyarthritis from which he recovered without medication. On admission there were physical signs of both mitral insufficiency and stenosis of a degree that must have required several months or years to produce. And yet the most minute questioning could not elicit a history of any previous symptoms of rheumatic fever. I have examined the heart of a young girl who died in the second week of her first attack of acute rheumatic fever, with polyarthritis, pericarditis and acute valvulitis; but the mitral valve was between 2 and 4 mm. thick and showed, microscopically, evidence of long standing inflammation. A boy, aged 14 years, came to the hospital with slight pain in the knees of a few hours' duration, because he had been

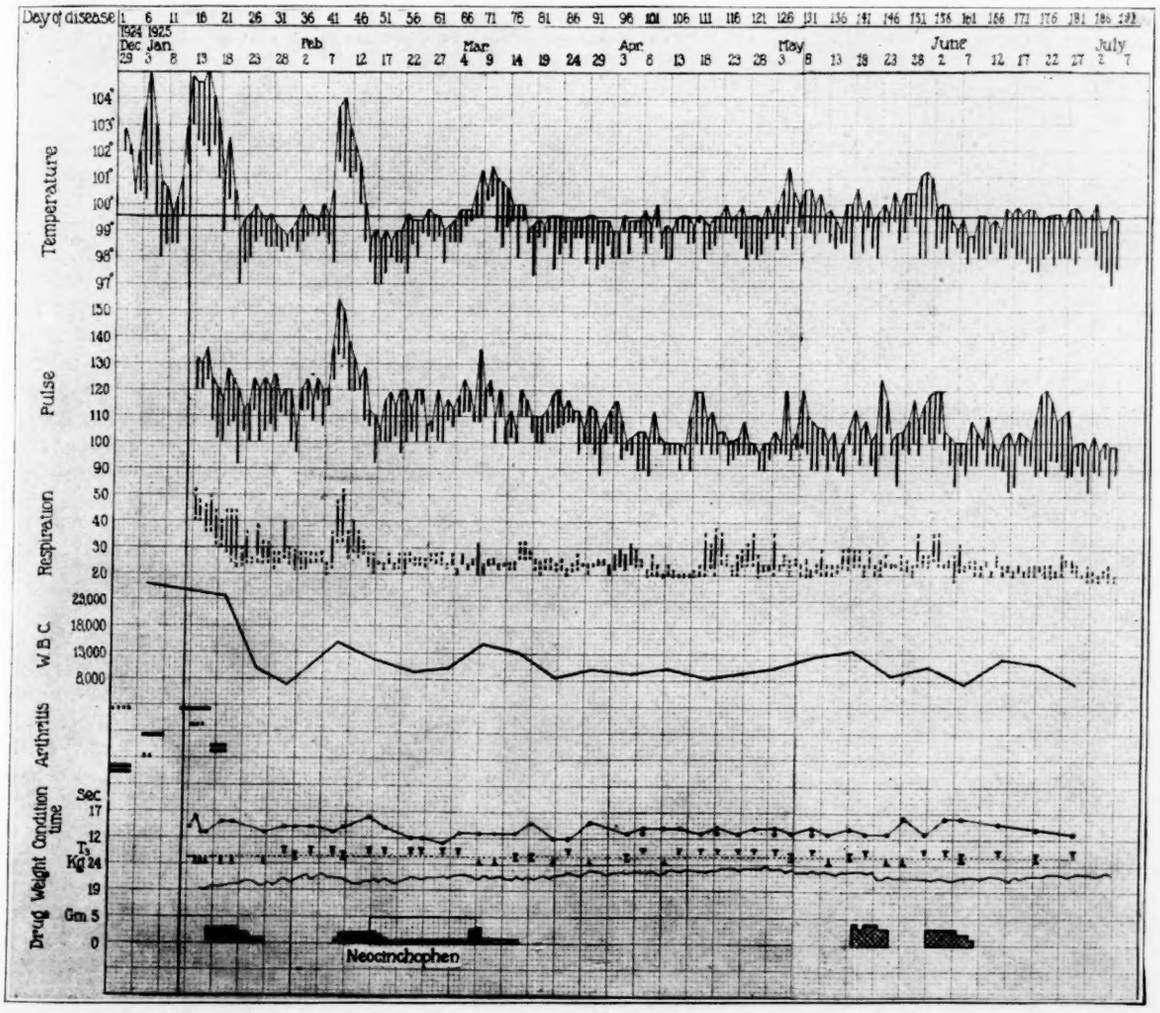

Fig. 2.—Polycyclic course: Arthritis only with first two cycles; persisting leukocytosis and variation in electrocardiograms indicated persisting infection. Direction of T wave in lead 3 indicated by T or ⊥.

warned that such symptoms might be of importance. Because a few subcutaneous nodules were found, he was admitted and observed for an entire winter. His fever was never higher than 101 F., nor did joint pains reappear. But recurring nodules and changing electrocardiographic complexes indicated that his rheumatic infection was active (fig. 4). Another boy came to the outpatient department complaining only that suddenly his hat would not fit and when he tried to put it on tight there was slight tenderness of the scalp. Examination revealed numerous subcutaneous nodules from 3 to 8 or 10 mm. in diameter. He refused to remain in the hospital because he felt so well, and yet it is obvious that he was harboring a serious active infection.

Sutton [4] has lately recorded that among 253 girls with rheumatic heart disease 21 per cent did not give any history of chorea, acute arthritis or growing pains previous to the discovery of heart disease, and that among 174 boys 14 per cent gave no such history. Wilson, Lingg and Croxford [5] have shown that in children

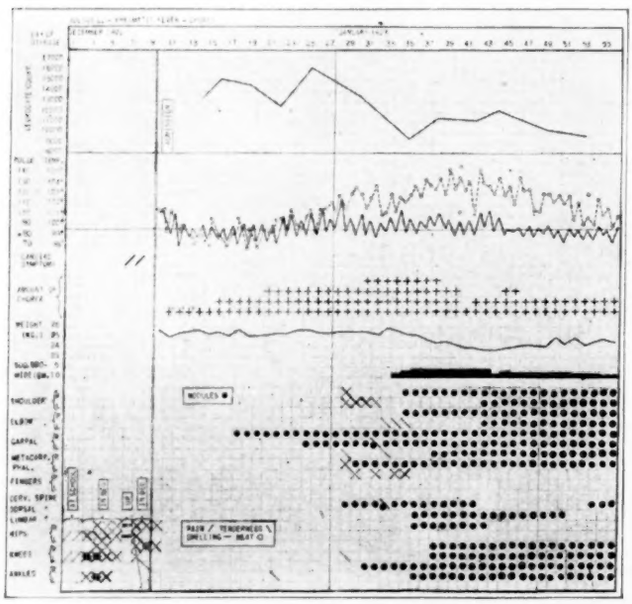

Fig. 3.—Polyarthritis, chorea and multiple subcutaneous nodules present simultaneously.

mild growing pains may have much the same significance as severe arthritis when considered as indicators of active rheumatic infection likely to implicate the heart, and to cause permanent, severe injury to that organ.

This suggests for discussion a group of manifestations which cannot always be considered as rheumatic in origin and yet which occur often enough in connection with other symptoms and signs of the disease to make one feel that there may be a close relationship. Growing pains in children in many instances probably do not indicate active rheumatic fever; but in a child with other evidence of the infection they must be viewed with concern. A similar attitude must probably be taken toward tonsillitis. It has been the experience of numerous clinicians that the majority of attacks of polyarthritis rheumatica are preceded within a few weeks or days by an acute tonsillitis. So frequently has this occurred in our patients that there seems to have been a causal relationship. In many cases, relapses are accompanied by a definite angina. Nevertheless, it would be difficult to establish that all or even a majority of attacks of tonsillitis are of rheumatic origin. The extensive and carefully controlled histologic studies of Holsti [6] show that there are marked inflammatory foci in all types of diseased tonsils, but that in the tonsils of patients with rheumatic polyarthritis or heart disease there occur more intense mural changes in the medium-sized arteries than are found in tonsils from patients with other diseases. Such observations indicate that the alterations in the tonsils may be of degree rather than of quality.

Nephritis occupies a similar position. Cases are seen in which the relationship between the onset of hematuria, cylindruria and polyarthritis is close enough to make the physician feel that there is a common cause. Stettner,[7] among fifty rheumatic children, describes what he calls "heightened capillary vulnerability" in thirty-three cases, in many of which it was made manifest by persistent microscopic hematuria. Fahr [8] places rheumatic fever among the leading causes of nephritis, and describes renal vascular lesions similar in type to those considered to be characteristic of rheumatic fever. Evans [9] describes almost identical intimal lesions in the arterioles of the pericardium and kidney of a subject who had succumbed to rheumatic pericarditis. Veil [10] states that an attack of nephritis is frequently the equivalent of a bout of polyarthritis during the course of rheumatic fever. A recognition of a close relationship between diseased tonsils and nephritis has become so general that tonsillectomy is almost as common for the treatment of this condition as it is for rheumatic fever. This suggests, even though it does not prove, a common pathogenesis for the two diseases in certain patients.

Some cases of unexplained bronchopneumonia may be placed in a similar category. While pneumonitis has long been suspected to be part of the symptom complex of rheumatic fever, several recent publications of Rabinowitz,[11] Small,[12] Boas and Schwartz,[13] Paul [14] and Naish,[15] have directed our attention again toward this subject; and, as occurs so frequently in medicine, we find what we are alert to detect. In the presence of a failing myocardium with compression of the lung from a dilated heart or a distended pericardium, or the possibility of a pleural effusion either from congestive heart failure or from rheumatic pleurisy, the physical signs arising from alterations in the lungs may be difficult of interpretation. Still, the histologic descriptions of marked endothelial proliferation with the cells arising chiefly from the capillaries,[15] and of severe

4. Sutton, L. P.: Observations on Certain Etiologic Factors in Rheumatism, Am. Heart J. **4**: 145 (Dec.) 1928.

5. Wilson, M. G.; Lingg, C., and Croxford, G.: Statistical Studies Bearing on Problems in the Classification of Heart Disease: III. Heart Disease in Children, Am. Heart J. **4**: 164 (Dec.) 1928.

6. Holsti, O.: Beiträge zur Kenntnis der Tonsillen bei den rheumatischen Gelenkaffektionen, Arb. a. d. path. Inst. Helsingfors **3**: 413, 1925.

7. Stettner, Erlangen: Über Polyarthritis acuta im Kindesalter, Deutsche med. Wchnschr. **55**: 261 (Feb. 15) 1929.

8. Fahr, T.: Beiträge zur Frage der Herz- und Gelenkveränderungen bei Gelenkrheumatismus und Scharlach, Virchows Arch. f. path. Anat. **232**: 134, 1921.

9. Evans, G.: A Contribution to the Study of Arteriosclerosis, with Special Reference to Its Relation to Chronic Renal Disease, Quart. J. Med. **14**: 215 (April) 1920; see p. 233.

10. Veil, W. H.: Die "rheumatische infektion": Ihre grundlegende Bedeutung in der Innern Medizin, Deutsche med. Wchnschr. **54**: 1539, 1928.

11. Rabinowitz, M. A.: Rheumatic Pneumonia, J. A. M. A. **87**: 142 (July 17) 1926.

12. Small, J. C.: Personal communication to the author.

13. Boas, E. P., and Schwartz, S. P.: Modes of Infection in Rheumatic Fever, Am. Heart J. **2**: 375 (April) 1927.

14. Paul, J. R.: Pleural and Pulmonary Lesions in Rheumatic Fever, Medicine **7**: 383 (Dec.) 1928; extensive bibliography.

15. Naish, A. E.: The Rheumatic Lung, Lancet **2**: 10 (July 7) 1928.

lesions in the pulmonary blood vessels,[16] recall rheumatic lesions elsewhere.

Pleurisy and pericarditis are not unexpected concomitants of severe polyarthritis rheumatica, but as isolated manifestations of rheumatic fever they are more rare. Still, cases are encountered, especially of pleurisy, which precede any other diagnostic signs of the infection by months. It is therefore sometimes difficult to decide whether or not a patient is suffering from rheumatic fever or from tuberculosis. Severe abdominal pain during an attack of rheumatic fever may make one fear acute appendicitis or peritonitis. In view of the frequency with which the pleura and pericardium are affected, it is rather astonishing that the peritoneum does not more often give evidence of a similar involvement. In such a low grade infection it is difficult to decide whether abdominal symptoms have their origin of symptoms arising in this portion of the body will be possible in the future.

HISTOLOGIC CHARACTERISTICS OF THE DISEASE

It was long thought that there was no characteristic histologic expression of rheumatic fever; but after Aschoff's [19] and Geipel's [20] description of the submiliary nodule in the myocardium, the attention of pathologists was directed mainly toward establishing this as the chief specific evidence of focalization of a hypothetic virus (fig. 5). In recent years, however, it has become increasingly evident that the Aschoff body is only an archetype of a general mode of reaction toward the causative agent or agents. The myocardial location of the Aschoff body made impossible a study of its evolution; hence for a time we were limited to postmortem material for investigation of the different phases of the

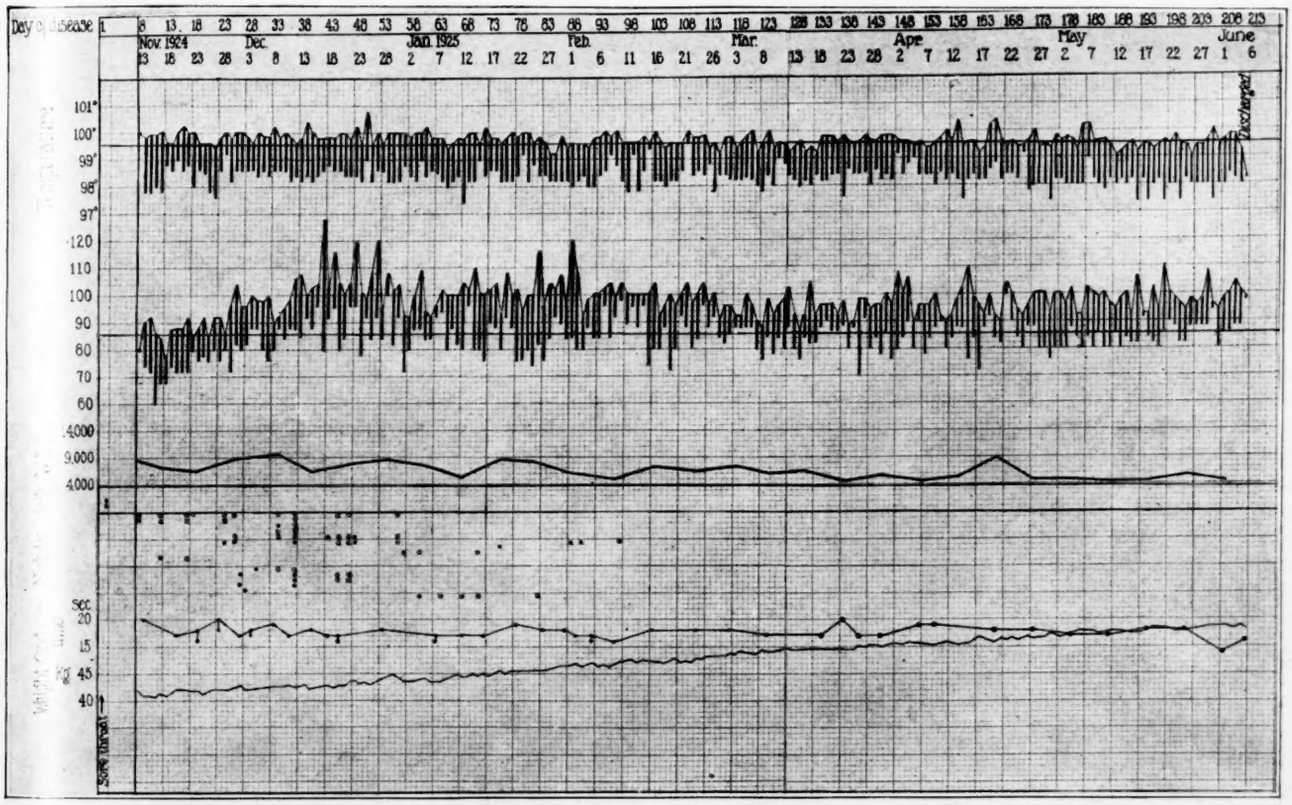

Fig. 4.—Active rheumatic fever with subcutaneous nodules; very slight arthritis one day. New nodules indicated by solid dots; old nodules still present indicated by circles.

in the intestinal tract or in the covering membranes. The onset of an attack of rheumatic fever is occasionally preceded or accompanied by symptoms of gastro-intestinal irritation; and Holsti [17] has shown that endarteritis verrucosa involves the intestinal blood vessels in rheumatic polyarthritis and carditis more frequently than in any other disease. Pappenheimer and von Glahn [18] have also described in the mesenteric vessels alterations which they regard as characteristic for rheumatic fever. With the knowledge of the occurrence of such definite microscopic lesions within the abdominal cavity, it is probable that a more correct interpretation unfolding of the reactive processes. But the establishment of the similar nature of the subcutaneous nodule placed before us material that could be observed macroscopically in its evolution and involution, and examined microscopically from time to time without harm to the patient. Then, too, we began to realize that the periarticular redness and edema, and the fluid from joints gave us materials that were just as important in constructing a picture of the tissue reaction as any that we might obtain from necropsy. Periarticular tissue removed at biopsy and tonsils and adenoids excised for therapeutic purposes have furnished additional material for comparison with that obtained postmortem; so that it is now possible from the assembled observations of

16. Von Glahn, W. C., and Pappenheimer, A. M.: Specific Lesions of Peripheral Blood Vessels in Rheumatism, Am. J. Path. **2**: 235 (May) 1926.

17. Holsti, O.: Beitrag zur Kenntnis des Magen-Dermkanals bei Arthro-, Nephro-, und Kardiopathien, Arb. a. d. Path. Inst. Helsingfors **4**: 415, 1926.

18. Pappenheimer, A. M., and von Glahn, W. C.: Studies in the Pathology of Rheumatic Fever, Am. J. Path. **3**: 583 (Nov.) 1927.

19. Aschoff, L.: Zur Myocarditisfrage, Verhandl. d. deutsch. path. Gesellsch. **8**: 46, 1904.

20. Geipel, P.: Untersuchungen über rheumatische Myokarditis, Deutsches Arch. f. klin. Med. **85**: 75, 1905.

clinicians and pathologists to reconstruct a fairly complete histologic picture of the disease.

We may first ask, Is this picture uniform? The answer is, No: different cases show variations histologically just as they do clinically. So may two cases of tuberculosis, as is exemplified by the difference in a lung filled with miliary tubercles and one solid with caseous pneumonia; and so does the man first with a chancre and later with a gumma. In all instances it is necessary to consider the tissue implicated, the duration of the disease, as affecting the state of the host's reactivity;

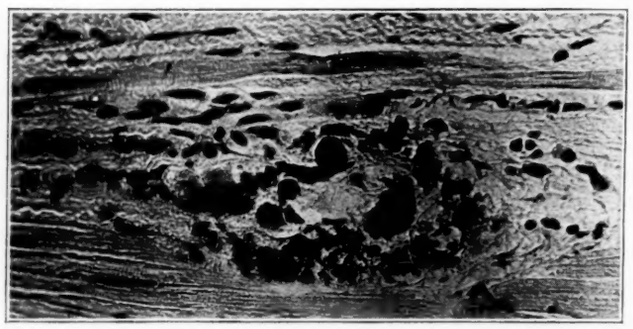

Fig. 5.—Characteristic Aschoff body: Central area of granular necrotic material, surrounded by large cells; several of them polynuclear giant cells.

also the dose and concentration of the etiologic agent in any one area, and, finally, variations in the virulence of the parasite.

In all cases of rheumatic fever the reaction may be pictured as a type of response to focal destruction of some tissue. These foci of necrotic collagen fibers may be so minute as to require special staining methods for their demonstration, or so gross in some subcutaneous nodules that they are evident when viewed with a low power lens. The center of an Aschoff body usually shows amorphous granular material. In the synovial membrane removed at biopsy early in the course of acute arthritis, I have seen small areas of necrosis surrounded by cells in various stages of necrobiosis [21] (fig. 6). Coombs [22] and Fahr [8] have both described similar but larger areas in the periarticular tissue removed postmortem in more chronic cases. In the aortic valve of one of our patients who died from an anesthetic nineteen days after the onset of his first attack of polyarthritis, there was a minute area of focal necrosis about 1 mm. below the surface of the valve. Pappenheimer and von Glahn,[23] Holsti,[24] Kugel and Epstein,[25] and Fahr,[8] to mention only a few, have all observed more or less destruction of the vessel walls as characteristic of rheumatic arteritis.

Close on this tissue destruction there is exudation of fluid and cells. How intense this may be is illustrated by the marked periarticular swelling so characteristic of acute rheumatic polyarthritis. The synovial cavity at this stage is distended with fluid having a heavy fibrin content and containing many polymorphonuclear neutrophils. Young subcutaneous nodules show edema, deposition of fibrin, and fairly numerous wandering cells (fig. 7). The extensive lesions of the left auricular endocardium contain numerous polymorphonuclear leukocytes (MacCallum,[26] von Glahn [27]), and in the lesions of rheumatic aortitis and arteritis similar exudates are found (Pappenheimer and von Glahn,[28] Kugel and Epstein [25]). The valves are also infiltrated with leukocytes and lymphocytes (Holsti [29]). Exudation of this type is not unique in rheumatic fever; indeed, it is a part of most acute inflammatory processes. The peculiarity in this disease is its intensity in proportion to tissue injury and the rate at which it may disappear spontaneously or when the patient receives adequate doses of certain drugs.

But intense exudation does not complete the reaction. In many instances a marked increase in the fixed cells soon is evident. These cells form the characteristic components of Aschoff bodies and subcutaneous nodules (fig. 8). Usually they seem to take their origin from the perivascular spaces, but in subcutaneous nodules they often appear to arise from the vascular endothelium. In auricular endocarditis MacCallum [26] describes them as "curiously forced into rows by arrangement of the elastic tissue lamellae, so that the Aschoff bodies have a banded appearance." Holst [30] describes similar rows of cells "like soldiers" in both the subendocardium and the subpericardium of a child who died in the fourth week of the disease. Several observers have described typical Aschoff bodies in the valves,[31] but in these structures similar but less characteristically arranged cells are often encountered.

It now seems obvious that the arrangement of the cells in Aschoff bodies in the form of a rosette is due to their accumulation about minute areas of focal necrosis, but that when injury occurs in other places where the tissue has different limiting peculiarities their arrangement may assume other forms. For example, the descriptions of Naish [15] suggest that the trabeculae of the lung may be much thickened and composed almost

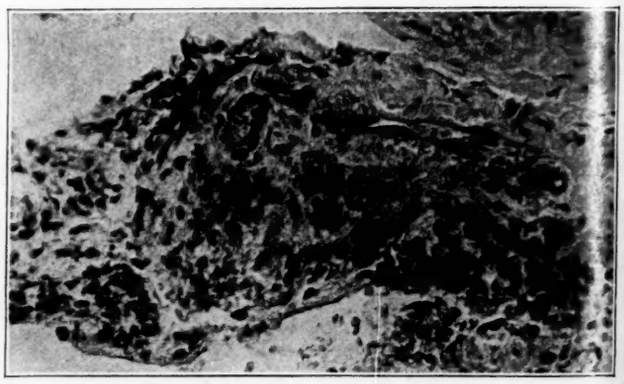

Fig. 6.—Lesion in synovia of knee removed at biopsy from patient who had a monocyclic polyarthritis.

entirely of cells of this type. In the pericardium and pleura they may form extensive sheets of tissue. Their peculiar staining with methyl green pyronin is not

21. Swift, H. F.: The Pathogenesis of Rheumatic Fever, J. Exper. Med. **39**: 497 (April), 1924.
22. Coombs, Carey: The Microscopic or "Submiliary" Nodules of Active Rheumatic Carditis, J. Path. & Bact. **15**: 489, 1911.
23. Pappenheimer and von Glahn (footnotes 16 and 18).
24. Holsti (footnotes 6 and 17).
25. Kugel, M. A., and Epstein, E. Z.: Lesions in the Pulmonary Artery and Valve Associated with Rheumatic Cardiac Disease, Arch. Path. **6**: 247 (Aug.) 1928.
26. MacCallum, W. G.: Rheumatic Lesions of the Left Auricle of the Heart, Bull. Johns Hopkins Hosp. **35**: 329 (Oct.) 1924.
27. Von Glahn, W. C.: Auricular Endocarditis of Rheumatic Origin, Am. J. Path. **2**: 1 (Jan.) 1926.
28. Pappenheimer, A. M., and von Glahn, W. C.: Lesions of the Aorta Associated with Acute Rheumatic Fever, and with Chronic Cardiac Disease of Rheumatic Origin, J. M. Research **44**: 489 (Sept.) 1924.
29. Holsti, O.: Beiträge zur Kenntnis der entzündlichen Klappenaffektionen mit besonderer Berücksichtigung der Pathogenese, Arb. a. d. Path. Inst. Helsingfors **5**: 401, 1928.
30. Holst, P. F.: Rheumatic Pancarditis, Acta. med. Scand. **65**: 751, 1926-1927.
31. Coombs, C. F.: Rheumatic Heart Disease, Bristol, Wright, 1924; (footnote 22).

specific for cells of rheumatic fever but merely indicates that they are in an actively proliferating condition. Whether they are monocytes or clasmatocytes one cannot state with certainty, though Sabin [32] has expressed the opinion that they are probably clasmatocytes.

We have repeatedly observed subcutaneous nodules to appear in patients under full therapeutic doses of antirheumatic drugs (fig. 9). As fully developed nodules

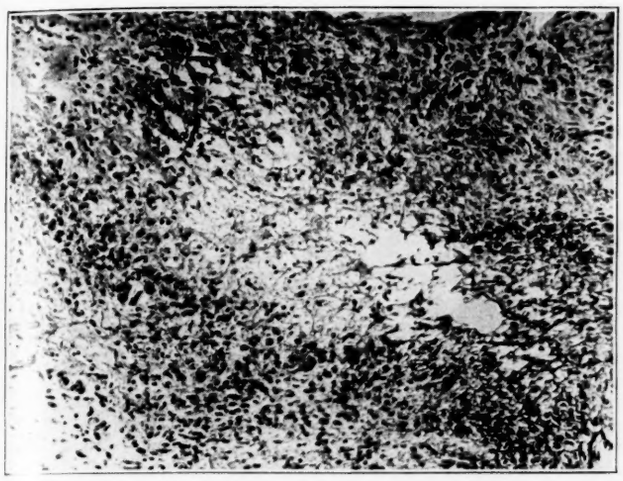

Fig. 7.—Young subcutaneous nodule—wide separation of tissue spaces by site of edema, and strands of fibrin. There were fairly numerous wandering cells, and only slight proliferation of fixed cells.

are largely composed of these cells (fig. 9), it is not improbable that similar proliferates in the viscera are likewise uninfluenced by these remedies.

Recent studies emphasize the importance of blood vessel lesions in rheumatic fever. The early observations of Klotz [33] have been confirmed and extended until it seems that the disease may be characterized as one of the vascular system instead of the joints (fig. 10). Many years ago Krehl [34] described thrombi in branches of the coronary artery, which today would probably be interpreted as lesions of the vessel wall. Von Glahn and Pappenheimer [35] have demonstrated vascular lesions in many parts of the body in which the endothelium is swollen and later is separated from the vessel wall by fibrin; the fibrin may invade the entire vessel wall and be mixed with broken elastica and cellular débris. External to the vessel there is an exudate and proliferate similar to that seen in auricular endocarditis. Eventually a plugged lumen becomes canalized. Kugel and Epstein [25] have confirmed these observations. I have seen similar lesions in vessels in the valves and elsewhere. Holsti [36] describes a condition which he calls arteritis verrucosa [35] occurring in the vessels of the tonsils and gastro-intestinal tract, which he states is more marked and frequent in rheumatic fever than in any other malady. This consists of an endovascular finger-like projection which is covered with elastic tissue continuous with the elastica of the vessel (fig. 11). It is thus highly probable that the lesion arises in the wall of the artery and is not simply due to proliferation of the subendothelium, like the "fibrinknotchen" of Siegmund.[37] These nodules have been described by him in the subendothelial region of various vessels and on the valves in animals immunized with bacteria. They are apparently the points at which the bacteria are phagocyted by the intimal cells, which then proliferate; but evidently the proliferation is all subendothelial, as Siegmund has not given any descriptions of injury to the elastica. Ehrich [38] in our hospital has also observed a number of instances of this lesion in immunized rabbits but has never seen splitting of the elastica.

While the pathologic manifestations of chorea are not clearly established, studies of Greenfield and Wolfsohn,[39] Castren [40] and others indicate that the chief lesions are endovascular and perivascular. The very small amount of mesenchymal supporting tissue in the brain probably explains in part the difference in microscopic picture between choreic and other rheumatic lesions.

NATURE OF RHEUMATIC VALVULITIS

With an understanding of the nature of the tissue response elsewhere, we are probably in a better position to discuss valvular endocarditis. In general, in rheumatic fever there is an exudative and proliferative tissue reaction which in intensity often appears to be out of proportion to the tissue necrosis. Motion of parts, and stress and strain in certain tissues or organs appear to be factors in determining localization. There is a widespread involvement of the vascular system, often in areas that do not give rise to any symptoms. The heart, while ontogenetically merely a modified blood vessel, in its development has become a very complex organ containing a special vascular system. Physiologically it is the most active part of the circulatory system, and the valves are the most subject to stress and strain of any of its parts. They are, moreover, covered with an

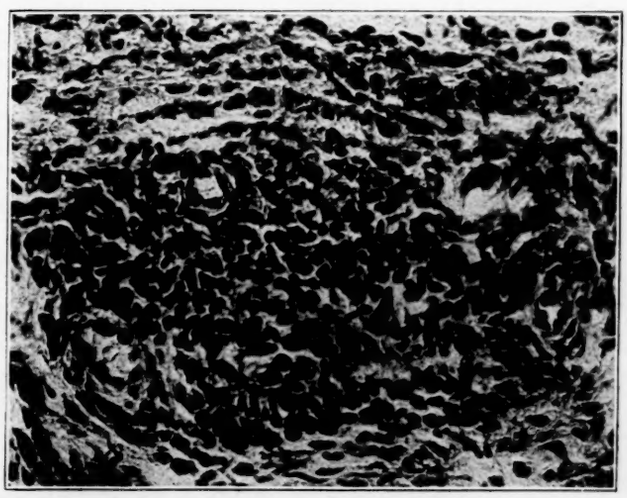

Fig. 8.—Subcutaneous rheumatic nodule showing intense proliferation of fixed cells around groups of blood vessels.

endocardium which immunologically is probably subject to the same alterations as is the vascular endothelium elsewhere; hence in infection it is subject to the same injuries. But in fetal life the valves are vascularized

32. Sabin, F. R.: Personal communication to the author.
33. Klotz, O.: Arterial Lesions Associated with Rheumatic Fever, J. Path. & Bact. **18**: 259, 1913-1914.
34. Krehl, L.: Beitrag zur Pathologie der Herzklappenfehler, Deutsches Arch. f. klin. Med. **46**: 454, 1890.
35. Von Glahn and Pappenheimer (footnotes 16 and 28).
36. Holsti, O.: Zur Kenntnis der Arteritis verrucosa, Arb. a. d. Path. Inst. Helsingfors **5**: 110, 1927.
37. Siegmund, H.: Über einige Reaktionen der Gefässwände und des Endokards bei experimentellen und menschlichen Allemeininfektionen, Verhandl. d. deutsch. path. Gesellsch. **20**: 260, 1925.
38. Ehrich, W. E.: Personal communication to the author.
39. Greenfield, J. G., and Wolfsohn, J. M.: The Pathology of Sydenham's Chorea, Lancet **2**: 603 (Sept. 16) 1922.
40. Castren, H.: Zur pathologischen Anatomie der akuten Chorea, Arb. a. d. Path. Inst. zu Helsingfors **3**: 371, 1925.

and, as demonstrated by many (Kugel and Gross,[41] Bayne-Jones,[42] Kerr and Mettier[43]), this fetal vascularization may persist into childhood and adolescence. Certain valves, then, have vascular endothelium in their substance as well as on their surface. But there is also a tendency for rheumatic foci to form in the subendocardium below the junction of the valves with the endocardium and endarterium. There are therefore at least three possible sites for initiation of injury to the valves: (1) in the covering endocardium; (2) in and about blood vessels in the valves, and (3) from foci in the valve rings.

For a long time most pathologists, under the leadership of Langer,[44] maintained that infection extended from the surface of the valve to its interior, but recently the conception of a primary interstitial vulvulitis has been more widely accepted. In subjects dying early in the course of the disease we have found inflammation of the substance of the valve without evidence of superficial injury, and in other cases have seen focal valvulitis far removed from the site of epivalvular lesions.[45] These observations were made by cutting large blocks which included valve, ring and neighboring endocardium. Holsti,[29] with a similar technic, has recently advanced most convincing evidence, presented in the accompanying tables, that deep interstitial inflammation occurs in practically all the valves of the left heart in rheumatic carditis and in the majority of those of the right heart. While deep valvulitis alone was occasionally found in the mitral and aortic valves, usually both deep and superficial lesions were present, and only rarely superficial valvulitis occurred by itself. In the tricuspid and pulmonic valves, on the other hand, deep valvulitis without superficial lesions was the rule. In a large series of nonrheumatic control cases, small superficial lesions of the valves were not infrequently found unaccompanied by deep valvulitis; and in practically all instances of deep inflammation the surface of the valves was intact. Holsti feels that primary infection of the valves may occur either through the surface or in the deeper structures but that, in the majority of instances of rheumatic valvular disease, deep inflammation is primary.

Two premises of those who advocate trauma of the valvular endocardium as the primary process are the absence of demonstrable vessels in most valves, and the lack of emboli in these vessels when present. They apparently conceive of endovalvular vessel injury as mainly embolic in nature. But it is evident that injury to the wall of vessels elsewhere in the body can occur without demonstrable emboli, and perivascular lesions have been found with a minimum of arteritis. Aschoff bodies have been seen at a distance from large blood vessels. As already noted, intense edema and many wandering cells may be found far from the primary injury. On these grounds we have advanced a hypothesis that the localization of verrucae at the line of closure may be due to injury of the endocardium of an edematous valve at the point of oft-repeated impacts with an opposing structure. The greatest injury would be expected at the point at which the impact is the hardest, and this is precisely where it occurs. The mitral valves show verrucae the most frequently, the aortic valves next; while, according to Holsti's figures, the pulmonic and tricuspid valves often have deep lesions without any injury to the surface covering. It is known that the pressure in the right heart is lower than that of the left; hence in this there may be a causal relationship.

Holsti-Incidence and Types of Valvulitis

		Mitral					Aortic					Tricuspid					Pulmonic							
Type of Case	Cases	Deep Alone	Deep and Superficial	Superficial Alone	Total	Per Cent of Total	Deep Alone	Deep and Superficial	Superficial Alone	Total	Per Cent of Total	Deep Alone	Deep and Superficial	Superficial Alone	Total	Per Cent of Total	Deep Alone	Deep and Superficial	Superficial Alone	Total	Per Cent of Total	Number of Valves	Number of Valvulitis	Per Cent of Valvulitis
Rheumatic.....	9	1	7	1	9	100	2	6	..	8	89	6	1	..	7	77	5	..	..	5	56	33	29	
Unknown.....	11	1	8	2	11	100	1	4	3	8	73	3	..	..	3	27	1	1	2	4	36	44	25	
Syphilitic.....	8	3	2	..	5	62	1	2	..	3	37	2	..	..	2	25	1	..	..	1	12	32	11	
Controls—normal.	22	2	..	7	9	41	..	..	6	6	27	1	..	3	4	18	..	..	3	3	14	88	22	
Acute infections...	26	3	..	6	9	35	1	..	3	4	15	2	..	1	3	12	1	..	1	2	8	104	18	
Degenerative heart disease.....	16	4	..	2	6	38	1	..	..	1	0.7	1	..	..	1	0.7	1	..	..	1	0.7	64	9	

(Abstracted from Holsti ref. 29.)

It is not my intention either to deny the occurrence of primary endothelial lesions or to underrate the importance of verrucae in the development of chronic valvular deformities, but rather to indicate the importance of diffuse valvulitis. Edema and infiltration of the cusps, either diffuse or focal, doubtless account in part for transitory murmurs and for other evidence of imperfectly functioning valves. With a picture of an active diffuse valvulitis in his mind, the physician will realize better the necessity for prolonged rest as a therapeutic measure.

FACTORS IN ETIOLOGY

In considering various hypotheses and theories of etiology, it is well to recall that they are still in the formative stage, and hence are constantly subject to modification and revision. Among the various microorganisms which have been demonstrated as having the capacity to produce polyarthritis, it has been shown that some may induce a type of serous inflammation of the joints very similar to that seen in rheumatic fever. For example, in the early stages of gonorrheal rheumatism there is often a polyarthritis indistinguishable from polyarthritis rheumatica; but most of the joints may return quickly to normal, with later a grossly destructive process in only one.

Serous polyarthritidis may be induced by dysentery bacilli, *Bacillus melitensis*, tubercle bacilli and *Spirochaeta pallida*, but in each instance there eventually

41. Kugel, M. A., and Gross, L.: Gross and Microscopical Anatomy of the Blood Vessels in the Valves of the Human Heart, Am. Heart J. **1**: 304 (Feb.) 1926.
42. Bayne-Jones, S.: The Blood Vessels of the Heart Valves, Am. J. Anat. **21**: 449 (May) 1917.
43. Kerr, W. J., and Mettier, S. R.: The Circulation of the Heart Valves, Am. Heart J. **1**: 96 (Oct.) 1925.
44. Langer, L. V.: Über die Blutgefässe in den Herzklappen bei Endocarditis valvularis, Virchows Arch. f. path. Anat. **109**: 465, 1887.
45. Swift, H. F.; Andrewes, C. H., and Derick, C. L.: Valvulitis as an Early Lesion of Rheumatic Fever, abstr. J. A. M. A. **84**: 1952 (June 20) 1925.

develop features that distinguish it from rheumatic polyarthritis. So far as I am aware, no filtrable virus has been shown to produce either acute or chronic lesions comparable with those encountered in rheumatic fever. Practically all investigators in this field have been forced at one time or another to a consideration of the rôle of the streptococci in this disease.[46]

The first difficulty encountered is the ubiquity of streptococci. They have been unequivocally established as essentially the sole cause of very few diseases, among which may be mentioned erysipelas, scarlet fever, acute tonsillitis and septicopyemia; but even here their exact mode of action has not been finally determined. Among the diseases thought to be due to nonhemolytic varieties, subacute bacterial endocarditis is the only one in which their causative rôle has been definitely proved. In attempting to explain their etiologic rôle in any other disease, the differences in the tissue reactions of patients with bacterial endocarditis and of patients with the disease under consideration must be accounted for.

Here it is desirable to discuss briefly certain additional features of rheumatic fever which apparently have a bearing on pathogenesis. Although it is often apparently acute, one of its outstanding characteristics is its tendency to relapse or to run a chronic course. Especially is this true in childhood, and it is in this age period that a beginning of its study must be made. It is rare in early infancy, and when it occurs at this age the mother is practically always suffering from the infection, a suggestion at least that the child has inherited something—possibly a susceptibility—from her. But in large statistical material the curve of the incidence of onset leaves the base line at the age period of about 2 years, rises steadily until 8 or 9 years, and then begins to fall. This freedom from symptoms in the earliest years of life suggests that if streptococci cause the disease, the tissues must be prepared to react in the peculiar manner seen in rheumatic fever; for these micro-organisms are encountered in practically all throats. In most cases there is a history of repeated or chronic infection somewhere in the respiratory tract; but, on the other hand, most children with these respiratory infections do not develop rheumatic fever; hence other influences are apparently requisite. In some instances there are evident exposures to other patients with the disease. Multiple cases in single families are frequent enough to suggest that there may be an inherited disposition to infection; but often the possibility of family and house exposure cannot be eliminated, so that exact interpretation of all these elements is difficult. The preponderance of the disease among the laboring class of society and its relative rarity in those less exposed to depressing economic conditions, together with its decreased incidence with widespread improved sanitation and living conditions, all suggest that certain factors play a rôle in a manner similar to that seen in tuberculosis. A similar diminution has been evident in scarlet fever and erysipelas.[47]

A striking point brought out by recent British investigations[48] is that these rheumatic children show but

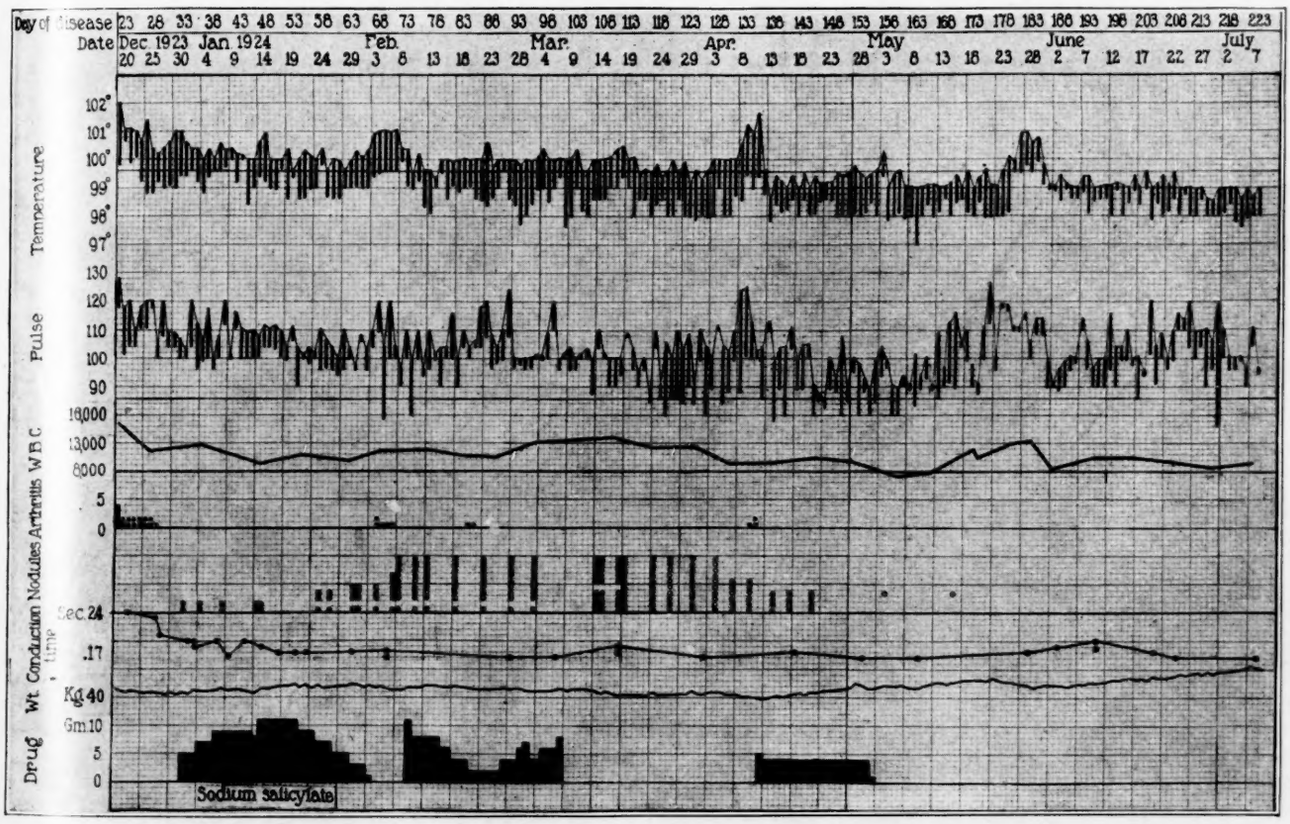

Fig. 9.—New subcutaneous nodules, shown by solid dots, appearing while patient, aged 11 years, was under full therapeutic doses of sodium salicylate.

46. Poynton, F. J., and Payne, A.: Researches on Rheumatism, London, Macmillan Company, 1913. A complete bibliography and discussion of the relation of streptococci in various rheumatic conditions is given in the Annals of the Pickett-Thomson Research Laboratory, London, part 1, 4, 1928.

47. Atwater, R. M.: Studies in the Epidemiology of Acute Rheumatic Fever and Related Diseases in the United States, Based on the Mortality Statistics, Am. J. Hyg. 7: 343 (May) 1927.

48. Acute Rheumatism in Children in Its Relation to Heart Disease, British Ministry of Health, Report 44, 1927.

little tendency to recurrence of their infection when they are in special convalescent homes and schools; McCulloch and Irvine-Jones [49] have shown, on the other hand, that when such children return to their homes they are more subject to relapses than children who have not been sent away. Vining [50] has recently stressed the importance of nutritional factors as causative influences. The fairly well established fact that the disease is less common and also less severe in the South as compared with the North,[51] and its practical absence in the tropics, also give food for thought on the rôle of sunshine or other environmental influences.

ETIOLOGIC RÔLE OF STREPTOCOCCI

Three hypotheses of the etiologic rôle of streptococci in rheumatic fever may be mentioned: (1) elective localization; (2) specific streptococci elaborating a specific toxin, and (3) rheumatic fever as an allergic phenomenon. Against the preponderant influence of elective localization may be brought the evidence that the infection is not limited to any one structure but is practically as widespread as syphilis. The specific streptococcus hypothesis [52] rests on the recovery of indifferent streptococci in blood culture from a few patients with the disease, on the action on the course

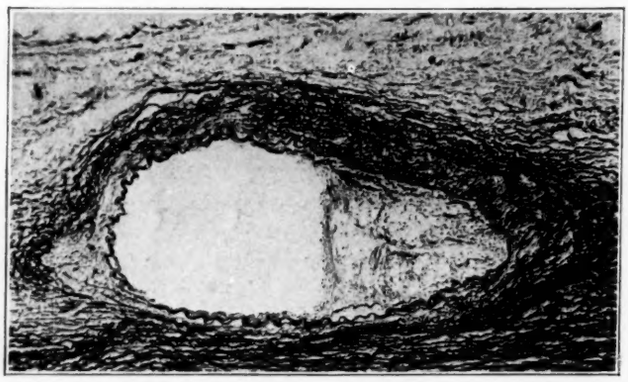

Fig. 10.—Endarteritis in a small artery of the aorta, from a patient who died from an anesthetic nineteen days after the onset of the first attack of polyarthritis (Weigert's elastica stain).

of the infection of an immune serum prepared against these cocci, and finally on the action of a vaccine prepared from them. But it does not take into consideration the possible rôle of other types of streptococci which have been recovered from blood cultures or tissues of patients, nor does it consider the influence of other types of antistreptococcus serums or vaccines.[52a] Hitchcock [53] has recently shown that indifferent streptococci are practically as frequent inhabitants of the throats of nonrheumatic as of rheumatic individuals and that the strains recovered from blood cultures belong to different immunologic groups; Nye [54] has made similar observations. Hence indifferent streptococci must be considered in the same light as other types. They may and probably do play a rôle in some cases, but no more an exclusive rôle than any other strains.

Indeed, multiplicity of cultural or immunologic types of streptococci has long been one of the well established bacteriologic observations (Swift and Kinsella,[55] Zinsser and Yu [56]). It has also been shown that the strains recovered from patients with the disease produce the same lesions as do those recovered from the throats of nonrheumatic persons when injected in large amounts into laboratory animals (Menzer,[57] Cole,[58] Bull [59]). The results of such experiments have always thrown doubt on a specific causative rôle of streptococci.

THE ALLERGIC THEORY

The allergic hypothesis offers a reasonable explanation of these divergent observations. In 1902, before the development of the modern theories of allergy, Menzer [60] advanced the hypothesis that in a patient with acute articular rheumatism the streptococci were early distributed to the joints without giving rise to symptoms, but that only after the elaboration of antibodies to a certain intensity did symptoms appear. He explained the development of inflammation as a result of the union of antibodies with bacteria in the tissues, and on these grounds accounted for the increase of local symptoms that followed the administration of his antistreptococcus serum. Recognition of the nature of the Arthus phenomenon led Friedberger [61] to produce arthritis in rabbits by injection of horse serum into joints of immunized animals; this he designated as "gelenkrheumatismus." Based partially on this work and partially on the occurrence of polyarthritis in serum disease, which was then considered to be anaphylactic in nature, was a hypothesis, advanced by Weintraud [62] that rheumatic fever was an anaphylactic reaction to bacterial protein. Herry [63] about the same time asserted that he could specifically sensitize the joints of rabbits with extracts of nonhemolytic streptococci so that subsequent intravenous injection of the same microorganisms was followed by arthritis in the sensitized joints.

Neither Faber [64] nor my assistants and I could confirm his work. Faber stated that preliminary intra-articular sensitization with a streptococcus rendered the joint so treated more susceptible to involvement, when intravenous inoculation with the same

49. McCulloch, Hugh; and Irvine-Jones, Edith I. M.: The Rôle of Infection in Rheumatic Children, Am. J. Dis. Child. **37**: 252 (Feb.) 1929.
50. Vining, C. W.: The Prerheumatic Child, M. J. & Rec. **128**: 351 (Oct. 3), 395 (Oct. 17), 453 (Nov. 7) 1928.
51. Seegal, David; and Seegal, B. C.: Studies in the Epidemiology of Rheumatic Fever, J. A. M. A. **89**: 11 (July 2) 1927.
52. Small, J. C.: The Bacterium Causing Rheumatic Fever and a Preliminary Account of the Therapeutic Action of Its Specific Antiserum, Am. J. M. Sc. **173**: 101 (Jan.) 1927; Observations Bearing on the Specificity of Streptococcus Cardioarthritidis in Rheumatic Fever and Sydenham's Chorea, ibid. **175**: 638 (May) 1928; The Present Development of the Biologic Products of Streptococcus Cardioarthritidis and Their Application in the Treatment of Rheumatic Diseases, ibid. **175**: 650 (May) 1928.
52a. Small (New York County Medical Society, April 22, 1929) has amplified his original hypotheses and now explains the exudative phenomena of the disease as allergic, and the proliferative reactions as toxic in origin.
53. Hitchcock, C. H.: Studies on Indifferent Streptococci: I. Separation of a Serological Group—Type I; II. Observations on the Distribution of Indifferent Streptococci in the Throats of Rheumatic and Nonrheumatic Individuals, J. Exper. Med. **48**: 393, 403 (Sept.) 1928.
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55. Swift, H. F., and Kinsella, R. A.: Bacteriologic Studies in Acute Rheumatic Fever, Arch. Int. Med. **19**: 381 (March) 1917.
56. Zinsser, Hans; and Yu, H.: The Bacteriology of Rheumatic Fever and the Allergic Hypothesis, Arch. Int. Med. **42**: 301 (Aug.) 1928.
57. Menzer, Arthur: Die Aetiologie des akuten Gelenkrheumatismus, nebst kritischen Bemerkungen zu seiner Therapie, Berlin, Hirschwald, 1902.
58. Cole, R. I.: Experimental Streptococcus Arthritis in Relation to the Etiology of Acute Articular Rheumatism, J. Infect. Dis. **1**: 714, 1904.
59. Bull, C. G.: The Pathologic Effects of Streptococci from Cases of Poliomyelitis and Other Sources, J. Exper. Med. **25**: 557 (April) 1917.
60. Menzer, A.: Serumbehandlung bei akuten und chronischem Gelenkrheumatismus, Ztschr. f. klin. Med. **47**: 109, 1902.
61. Friedberger: Über aseptisch erzeugte Gelenkschwellungen beim Kaninchen, Berl. klin. Wchnschr. **50**: 88, 1913.
62. Weintraud, W.: Über die Pathogenese des akuten Gelenkrheumatismus, Berl. klin. Wchnschr. **50**: 1381, 1913.
63. Herry: Contribution à l'étude du rheumatisme articulaire-aigu: Essai de pathogénie et de sérothérapie; étude clinique, anatomique et expérimentale, Bull. de l'Acad. roy. de Belgique, series 4, **28**: 76, 1914.
64. Faber, H. K.: Experimental Arthritis in the Rabbit: A Contribution to the Pathogeny of Arthritis in Rheumatic Fever, J. Exper. Med. **22**: 615, 1915.

coccus was subsequently carried out. Boots and I,[65] on the other hand, were unable to show in rabbits that a joint so treated was any more liable to arthritis than other nonsensitized joints of the same animal. Zinsser and Wu[66] found it difficult to induce arthritis in animals with various nonbacterial proteins without repeated intra-articular injection with the antigen; but later Zinsser and Grinnell[67] showed that the reactivity of the joints of guinea-pigs made hypersensitive to pneumococci was parallel to that of the skin. The same authors[68] in 1925 stated that reasoning about tuberculin allergy is especially applicable to "various forms of arthritis in which it is at least logical to think of a possible allergic association or in the light of recent work on streptococcus toxins of a remote toxic effect." Zinsser and Yu[56] later discussed this hypothesis more fully. Poncet's[69] suggestion several years previously had led to the application of the term "Poncet's arthritis" to a special form of serous joint involvement in tuberculosis. Weston Price[70] advanced a similar hypothesis as to the etiologic rôle of streptococci in chronic arthritis, especially in relation to dental infection.

During investigations of the relationship of serum disease to polyarthritis, we[71] have shown that antirheumatic drugs are ineffectual when administered only after the onset of arthritis. If, on the other hand, they are given in large doses immediately after the injection of serum and are continued under this treatment until the end of the usual period of serum disease, the incidence of polyarthritis is markedly diminished, even though the urticaria is uninfluenced. There is also a lessened precipitin content of the blood of these patients compared with that of controls not treated with drugs, and the incidence of polyarthritis seems to run parallel with the concentration of antibodies. In certain respects, therefore, the pathogenesis of serum disease does not compare with that of rheumatic fever.

Several years ago I[72] called attention to a number of points of similarity among the manifestations of tuberculosis, syphilis and rheumatic fever. Others[73] have made similar observations. When, therefore, by the production of focal lesions in rabbits with certain nonhemolytic streptococci we[74] were able to induce a state of hypersensitiveness similar to that described in tuberculosis, we felt that we had a possible clue to a solution of the problem. The point emphasized here is that production of focal lesions seems to be necessary for the induction of this allergic state and that, once present, it can be maintained by inoculation of the tissues with doses of streptococci that are practically innocuous for normal animals. In our experiments the production of cutaneous lesions, sinusitis and arthritis has been the most effective method of inducing this state. A rabbit highly sensitized responds to intracutaneous inoculation of very small doses of streptococci with marked edema and exudation followed by intense proliferation; to inoculation of the cornea with interstitial keratitis, and to intravenous inoculation of suitable doses with death similar to that seen in tuberculin shock.

In sharp contrast is the reaction of rabbits which are first inoculated intravenously.[75] As might possibly be expected from immune animals, they show none of these reactions of hypersensitiveness, but, on the other hand, give smaller lesions than do normal animals following intracutaneous inoculation. These lesions, moreover, show a minimum of exudation compared with a maximum in the hypersensitive group. In by far the majority of animals, the hypersensitive state is maintained if intracutaneous inoculations are continued over a period of months; but intravenous inoculations of proper size cause the animal's reactivity to pass over to that of the nonsensitive or immune state.[76]

Fig. 11.—Arteritis verrucosa: Finger-like projections from arterial wall into lumen of arteries, some in cross-sections. From adenoids removed from patient with mitral stenosis (Weigert's elastica, hematoxylin and eosin stain).

This capacity of focal lesions to prolong the hypersensitive state in rabbits seems to be a peculiarity of the nonhemolytic streptococci, for we have found that, following repeated intracutaneous inoculations with hemolytic streptococci, rabbits soon show decreasingly intense reactions. Zinsser and Grinnell[68] record that guinea-pigs, after intraperitoneal inoculation with *Streptococcus scarlatinae,* pass to a state of immunity following a state of allergy. Julianelle and Avery[77] also have noted that intracutaneous inoculation of rabbits with avirulent forms of pneumococci results first in increased, followed later by decreased, reaction. Ramel[78] records a number of instances in which experi-

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66. Zinsser and Wu, cited on page 377 by Zinsser, Hans: Bull. New York Acad. Med. **4:** 351 (March) 1928.

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68. Zinsser, Hans; and Grinnell, F. B.: Allergic Reactions to the Hemolytic Streptococcus, J. Immunol. **10:** 725 (July) 1925.

69. Poncet, A.: Rheumatisme tuberculeux ou pseudo-rheumatisme d'origine bacillaire, abstr. Centralbl. f. Bakteriol. Ref. **31:** 77, 1902.

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75. Swift, H. F., and Derick, C. L.: Immune Tissue Response to Nonhemolytic Streptococci, Proc. Soc. Exper. Biol. & Med. **25:** 224, 1927; Reactions of Rabbits to Nonhemolytic Streptococci: II. Skin Reactions in Intravenously Immunized Animals, J. Exper. Med. **49:** 883, 1929.

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77. Julianelle, L. A., and Avery, O. T.: Intracutaneous Vaccination of Rabbits with Pneumococcus: III. Hypersensitiveness, Proc. Soc. Exper. Biol. & Med. **26:** 227, 1928.

78. Ramel, E.: Des relations existant entre manifestations cliniques et histologiques de l'allergie dans certaines maladies infectieuses croniques, Rev. méd. de la Suisse Rom. **45:** 257 (April) 1925.

mentally a state of allergy (hypersensitiveness) has been made to pass over to a state of positive anergy (immunity) following repeated injections into the tissues of the specific antigen.

Another feature in our animals of the hypersensitive state to nonhemolytic streptococci is a lack of specificity. Animals overreacting to the homologous strain show similar, though sometimes less marked, hypersensitiveness to heterologous strains. Mackie and MacLachlan [79] have shown a similar crossing of this state in guinea-pigs sensitized with streptococci; and Birkhaug [80] has demonstrated a comparable condition in rabbits inoculated intraperitoneally with indifferent streptococci. Selter,[81] in a very complete review of the crossing of the hypersensitive state in tuberculin allergy, calls attention to the necessity of regarding allergy in general from a quantitative as well as from a qualitative point of view. The observations of Dochez and Stevens [82] and Birkhaug,[80] showing the existence of two types of allergy to streptococci, one to a neutralizable toxin and another to some nonneutralizable substance, are noteworthy, for our highly sensitive rabbits seem to be in the second state.

The experimental demonstration of both a hypersensitive and an immune type of reaction toward the same nonhemolytic streptococcus seemed to us [83] transferable by analogy to the clinical condition of patients with rheumatic fever and with subacute streptococcus endocarditis, respectively. The former are generally recognized to be suffering from some focal infection; they show a marked tissue reaction to some irritants, which, if streptococci, are present in only small amounts in any one area. Whether the actual irritant is bacterial body or a soluble toxic substance is, for the purpose of the comparative argument, unimportant. The tissues of a patient with subacute bacterial endocarditis do not show the same state of overreactivity to streptococci. This is evident to any one who will study these patients with this in mind. Deposition of infected emboli in the pleura does not lead to effusions like those seen in rheumatic fever, and embolic lesions about the joints or in the fingers are not accompanied by exudation into the tissue similar to that seen in polyarthritis rheumatica, nor are they followed by proliferation comparable in intensity to that seen in subacute nodules. Howells and Corrigan [84] have shown that these patients have a surprising insensitiveness of the skin to filtrates of streptococci; and Kinsella and Garcia [85] have recorded that subcutaneous injection into such patients of agar infected with the organisms grown from their blood stream was followed by little evidence of reaction. The fact to be stressed here is not that these patients do not react to their infection but rather that they react in a different manner, with a diffuse hyperplasia of the cells of the hematopoietic system, and focally with embolic lesions. There is a constant bombardment of the tissues with streptococci cast off from the infected valves, with comparatively little gross evidence of focal exudative tissue injury.

Most patients with rheumatic fever, on the other hand, show an overreactivity to streptococcus vaccines, filtrates or nucleoproteins. Birkhaug [86] and Kaiser [87] have both observed the finding of more marked skin reactions to filtrates of indifferent streptococci in rheumatic persons than in controls. Irvine-Jones,[88] we [89] and later Birkhaug [90] observed that such a heightened cutaneous reactivity can be elicited with filtrates of other types of streptococci as well; and Strauss [91] has demonstrated marked skin allergy to Pondorff B vaccine in patients with rheumatic carditis. The observations of Mackenzie and Hanger [92] and of Bristol [93] indicate that many nonrheumatic persons may have a similar cutaneous hypersensitiveness—observations that we have been able to substantiate. Indeed, it would be surprising if this were not present, for acute or chronic infections with streptococci are common in the respiratory tract. Irvine-Jones [88] has observed that the same patients during the acute stages of the disease show more marked reactions than after apparent recovery, and that the character of reaction differs as recovery takes place.

We [94] have found, furthermore, that most of these patients show late febrile responses to intravenous injections of small amounts of vaccines or nucleoproteins of streptococci—reactions like those seen in tuberculous patients or animals following injection with tuberculin. Small [52] records febrile reactions on the second to fourth days following subcutaneous injection of vaccines or soluble antigens prepared from indifferent streptococci, and has observed quite late secondary reactions as well. Much more work is necessary before the significance of all these observations can be finally evaluated. It is necessary to demonstrate not only that rheumatic patients react more frequently but also that they show reactions to smaller doses of antigens; and that recovery is accompanied by a decrease in reactivity as indicated by the observations of Irvine-Jones.[88]

The endocarditis and arthritis sometimes seen as sequelae of scarlet fever are clinically and pathologically very similar to those of rheumatic fever. The theory advanced by Escherich and Schick [95] of an allergic pathogenesis of these late manifestations of scarlet fever is applicable by analogy to rheumatic fever.[96] In both there is usually a preceding angina, tonsillitis or other focal infection. Scarlet fever in a previously rheumatic patient usually incites another attack of the disease. Fahr [8] describes the histologic picture in the two diseases, although not exactly the

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88. Irvine-Jones, Edith I. M.: Skin Reactivity of Rheumatic Subjects to Streptococcus Filtrates, Arch. Int. Med. **42:** 784 (Nov.) 1928.
89. Swift, H. F.; Wilson, M. G., and Todd, E. W.: Skin Reactions of Patients with Rheumatic Fever to Toxic Filtrates of Streptococcus, Am. J. Dis. Child. **37:** 98 (Jan.) 1929.
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95. Escherich, T., and Schick, B.: Scharlach, Vienna, Hölder, 1912.
96. Swift, H. F.: The Heart in Infection, Am. Heart J. **3:** 629 (Aug.) 1928.

same, as very similar; and Siegmund [97] recently reports that the longer the time between the onset of scarlet fever and death, the more do focal lesions about the joints approximate those of rheumatic fever. He also suggests that these lesions are the expression of a peculiar allergic immune state. It may be, indeed, that a high degree of allergic immunity will alter the effect of hemolytic streptococci so that they give subacute proliferative instead of gross necrotic lesions; this is suggested by the work of Kuczynski and Wolff.[98]

It should be clearly understood that the so-called allergic theory does not establish unequivocally the etiologic rôle of streptococci in rheumatic fever but only furnishes us with the best explanation of how the different strains could all induce a similar clinical and microscopic picture. It also furnishes a hypothesis for continued investigation of the disease, from which further advances may be anticipated.

The observation that intravenous inoculation of rabbits altered the hypersensitiveness to a hyposensitive or immune state has led us to treat patients with intravenous injections of relatively small doses of streptococcus vaccines or nucleoproteins; and following properly regulated doses we have observed a constantly diminishing febrile response and in several cases a decreasing cutaneous reactivity after the treatments. In many of the patients there has been a corresponding improvement in the general condition, but whether this was due to the treatments or was a natural evolution of their infection it is difficult to affirm. The evaluation of therapeutic measures in patients with rheumatic fever is one of the most difficult problems in medicine. This is due to the fact that in most instances there is a tendency to recovery, temporarily, at least, and it is difficult in any single case to judge just when this will occur or at what rate it will proceed. Because of the marked tendency to relapses in the acute forms of the infection and the liability to recurrences in patients who have once had the disease, it is probable that if in a group of individuals any form of treatment eliminated these relapses and recurrences as compared with a like number of untreated controls, it might be stated with a fair degree of certainty that the treatments had been of value. But careful studies such as those recently reported by Wilson, Lingg and Croxford [5] are needed to furnish a base line of usual expectancy.

In the meantime, investigation must proceed with certain hypotheses based on as exact experimental work in animals as can be devised. Up to the present the methods at our disposal of decreasing the hypersensitiveness of infection are (1) stopping the production of new foci of infection; (2) elimination of foci already present, and (3) intravenous desensitization or immunization with suitable antigenic substances. The eradication of infected tonsils and teeth has been a standard of treatment since the importance of focal infections was pointed out by Billings.[99] While apparently brilliant results follow this treatment in certain cases, in others they are disappointing, perhaps because of the impossibility of eliminating all such foci. It appears, then, that an important problem is to devise some method of building up the immunity so that the liability to renewed infection will be lessened, or if new infection occurs the reactivity of the tissue will approximate that of immunity without hypersensitiveness. This is one of the problems we are attempting to solve.

97. Siegmund, H.: Veränderungen der Gefässwände und des Endokards bei Scharlach, Centralbl. f. allg. Path. u. path. Anat. **44**: 314, 1928.
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UPWARD DISLOCATION OF ACROMIAL END OF CLAVICLE

TREATMENT BY ELASTIC TRACTION SPLINT *

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The upward dislocation of the acromial end of the clavicle is easily reduced but difficult to maintain in position after reduction has been accomplished. This difficulty prompted the making of an elastic traction splint which has given satisfactory results in five out of six consecutive cases, four of which were treated aboard the U. S. S. *Relief*, hospital ship of the battle fleet. This apparatus merits reporting for two reasons: First, the results obtained by its use have been far more satisfactory than those of any other nonoperative method that I have used. Second, it is inexpensive and can be efficiently made and applied by any practitioner of medicine.

It is the general belief that dislocation of the outer end of the clavicle does not result in disability even when the reduction is incomplete. This is an erroneous impression. It is true that in some partly reduced dislocations the joint is serviceable for ordinary use, but when the manual work is hard the handicap is considerable. A sailor who is frequently required to do heavy manual work, such as loading and unloading stores, gunnery practice, drills, rowing and athletics, will not be fit for the performance of his duties if luxation exists. Continuous strain will tend to increase the separation.

The acromioclavicular articulation is an arthrodial joint which permits the outer end of the clavicle to glide on the articular end of the acromion and the scapula to rotate forward and backward on the clavicle. The coracoclavicular ligament limits the extent of the rotation. This joint has important functions in the movements of the upper extremity. Sir George Humphrey stated that if there had been no joint in the arch formed by the clavicle and scapula it would have been impossible to give a blow straight forward with the combined force of the shoulder, arm and forearm. Elevation and depression of the shoulder will be definitely affected because the scapula does not maintain its lower part in contact with the ribs.

The commonest dislocation of this joint is the upward displacement of the acromial end of the clavicle. This is rendered possible by the slanting shape of the articular surfaces of the joint, which permits the acromion process to pass under the outer end of the clavicle, and also by the opposing force of muscle attachments; namely, the sternocleidomastoid and trapezius muscles.

The lesion produced by injury is usually the tearing across of the superior acromioclavicular ligament from the clavicle, which remains attached to the acromion. This occurs when the scapula rotates on an anteroposterior axis with the coracoid process acting as a fulcrum, the acromion process descending while

* From the U. S. S. Relief, Hospital Ship, Battle Fleet.

the outer end of the clavicle ascends. In severe cases the coracoclavicular ligament is torn and the displacement is considerable.

The cause of the dislocation is usually a violent force applied to the shoulder so as to drive the scapula forward and the acromion downward and inward. The cases that are about to be reported were caused by injuries from football, wrestling, a fall from a horse, a fall from a tree, and a fall from a second story balcony.

The diagnosis of upward dislocation of the outer end of the clavicle is not difficult. The patient usually appears with the head bent toward the injured side, and the shoulder drawn downward and inward. The arm appears longer than its fellow and it cannot be lifted over the head. The clavicle is conspicuously prominent and is pulled upward above the acromion and held in that position by the trapezius, which appears in spasm.

TREATMENT

Most surgeons prefer open reductions to correct the upward dislocation of the outer end of the clavicle. Patients frequently refuse operation because this condition is not very painful and they minimize the disability that follows until they are called on for heavy work. The conservative method of treatment has fallen into bad repute because of the lack of a proper splint capable of maintaining the outer end of the clavicle in a reduced position. To accomplish this a splint must be so constructed as to sustain the weight

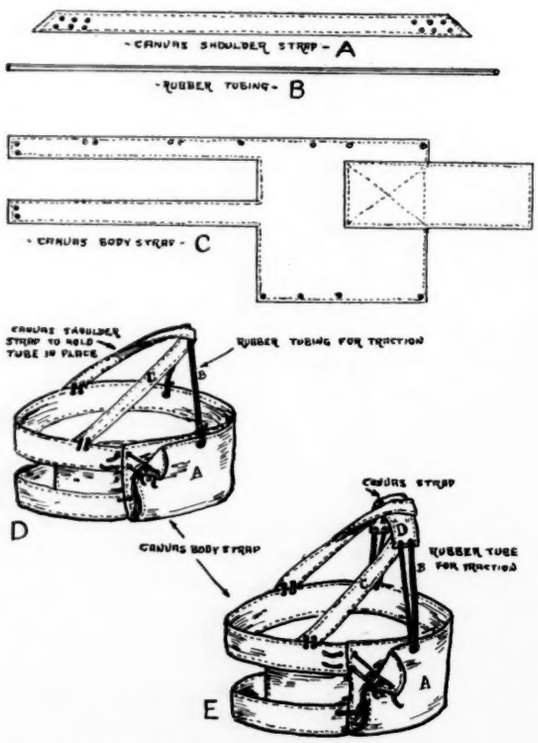

Fig. 1.—*A*, *B* and *C*, pattern and material required for the construction of the splint; *D*, splint when assembled; *E*, splint modified by interposing a piece of canvas between two rubber tubes as shown in *D*. This modification adds considerably to the efficiency of the splint.

of the arm, lift the shoulder upward, and make sufficient pressure on the outer end of the clavicle to counteract the spasm of the trapezius without undue pressure on the bent elbow. These specifications are all embodied in the elastic traction splint, which finds its field of usefulness in cases in which the injury is confined to the acromioclavicular joint. In cases in which the conoid and trapezoid ligaments are partially or completely ruptured, this splint is of no value and only the open reduction can reasonably assure a satisfactory result.

The splint can be easily made of canvas and rubber tubing. It is simple, inexpensive, easily applied and reasonably comfortable. It consists of a piece of light canvas cut in such a fashion that on folding it forms

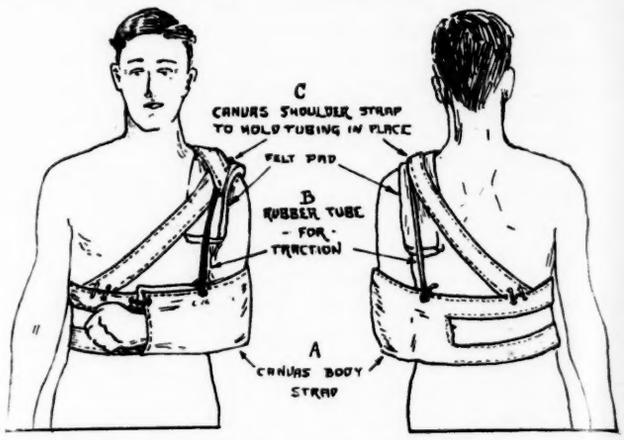

Fig. 2.—Front and back views of the original splint as shown in figure 1 *D*.

a troughlike arrangement into which the elbow and forearm comfortably fit. This slinglike arrangement encircles the body about the level of the elbow and is secured to itself in front, allowing ample room for the forearm and leaving the hand and wrist free. An axillary pad is placed in position and the elbow and forearm are covered with cotton prior to the application of the splint. Next to be applied is the traction strap. The middle part consists of canvas, and its extremities are made of rubber tubing. This is placed over the outer end of the clavicle, which is protected by a felt pad, and is then secured to the canvas body strap in front and behind the elbow as graphically presented in figure 3. The rubber tubing supplies the constant traction which is the most desirable feature of the splint, a traction that can be easily adjusted and regulated by the size of the tube and the tension to which it is subjected. The third and last strap of canvas is to prevent the traction strap from slipping over the shoulder. One end of it is secured to the body strap in the vicinity of the anterior axillary line of the normal side. Then it is carried across the chest to the affected shoulder, passing first under and then over the traction strap, making a sort of a loop. Then it passes across the back to be secured to the body strap near the posterior axillary line.

When the elastic traction splint is properly applied, it does not require further adjustment except for increasing or decreasing the traction by means of the rubber tubing, which is so readily accessible that the rest of the splint need not be disturbed.

REPORT OF CASES

CASE 1.—J. H. N., an American sailor, aged 23, was admitted to the hospital ship with a severe pain in the left shoulder, the result of a football injury. A provisional diagnosis of upward dislocation of the outer end of the clavicle was made, which was confirmed by a roentgenogram. As soon as the diagnosis had been made and confirmed, the dislocation was reduced and the elastic traction splint applied. The apparatus was removed at the end of four weeks. It was followed by a sling to support the arm for two weeks more. Six weeks

from the date of injury the patient was returned to duty without pain or limitation of motion, and apparently with a normal joint.

CASE 2.—D. E. W., an American sailor, aged 28, was admitted with pain in the right shoulder which was the result of a football injury. There was slight swelling but no ecchymosis about the region of the affected shoulder. The clavicle was conspicuously prominent and pulled upward above the acromion. A diagnosis of dislocation was made and confirmed by roentgen examination. The elastic traction splint was applied after reduction was accomplished. It was maintained for four weeks and then followed by a sling for two weeks. The patient was returned to duty forty-five days following the injury with excellent anatomic and functional result.

CASE 3.—J. D., an American seaman, aged 21, was admitted because of pain in the left shoulder, made worse on motion, from an injury sustained during an authorized wrestling bout aboard the ship. He was thrown on the mat by his opponent, striking his left shoulder with considerable force. Examination of the left shoulder showed a moderate amount of swelling and tenderness on pressure. The outer end of the clavicle appeared elevated to a marked degree. A diagnosis of upward dislocation of the outer end of the clavicle was made and confirmed by roentgen examination. The dislocation was reduced and the elastic traction splint applied and retained for four weeks, after which the arm was supported by a sling for two more weeks. Ten weeks from the time of the injury the patient was returned to duty. Roentgen examination showed the acromioclavicular joint to be in good position. The anatomic and functional results were very satisfactory.

CASE 4.—W. R. S., an American sailor, aged 24, was admitted because of pain in the right hip and right shoulder, which was aggravated by motion. The injury was the result of a fall from a second story balcony. Examination showed evidence of upward dislocation of the outer end of the right clavicle and fracture of the pelvis on the right side. Roentgen examination showed an upward dislocation of the outer end of the clavicle and a fracture of the right os pubis and acetabulum. As soon as this diagnosis was confirmed, the elastic traction splint was applied and the treatment for fractured pelvis was

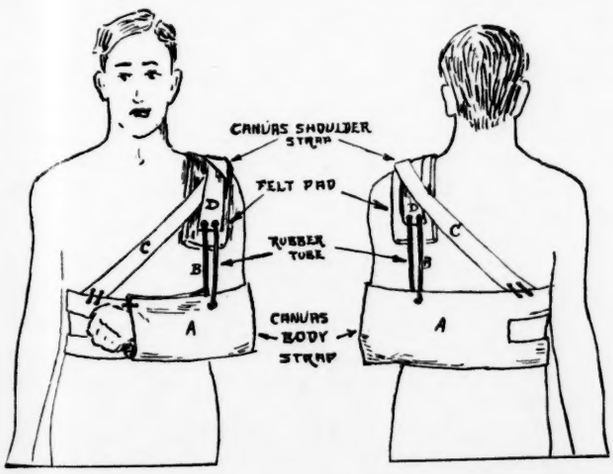

Fig. 3.—Front and back views of the modified splint as shown in figure 1 *E*.

instituted. The apparatus was removed at the end of four weeks. In six weeks the patient was up in a chair. Roentgen examination at that date showed the outer end of the clavicle in its proper position and an entire disappearance of the deformity in the pelvis, with the fragments in excellent approximation. Three months after the injury the patient was returned to duty, free from symptoms and with most satisfactory anatomic and functional results.

CASE 5.—J. M., a laborer, aged 23, was admitted because of severe pain in the right shoulder following a fall from a tree (about 20 feet). Examination of the right shoulder showed definite swelling in this region, with considerable upward displacement of the outer end of the clavicle. A diagnosis of dislocation was made and the elastic traction splint applied after reduction was accomplished. Four weeks later the splint was removed. Recurrence of dislocation took place. The result in this case was a failure anatomically and functionally. Open reduction was performed with excellent result. It was found that the acromioclavicular ligament was completely ruptured. The patient resumed his occupation as a laborer about ten weeks from the time of operation.

CASE 6.—C. T., a housewife, aged 32, was seen at home after a fall from a horse in which she was pitched on her left shoulder. Examination showed swelling and ecchymosis about the region of the shoulder and a small lacerated wound of the upper lip. The shoulder was drawn downward and inward

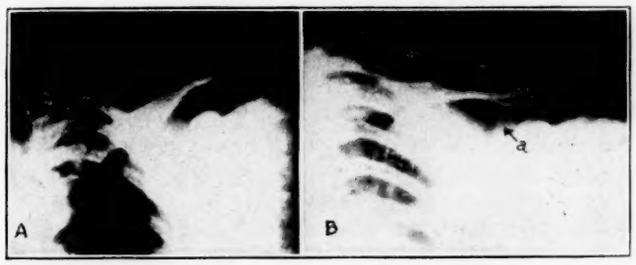

Fig. 4 (case 1).—*A*, upward luxation of the outer end of the clavicle with definite displacement; *B*, the same patient after reduction and application of the elastic traction splint. Note shadow (*a*) of rubber tube which indicates that traction was exerted in the right place.

and the clavicle was pulled upward. A diagnosis of upward dislocation of the acromioclavicular joint was made and confirmed by a roentgenogram. The elastic traction splint was applied after the reduction was accomplished. Four weeks later the splint was removed and the arm was supported by a sling for two weeks. The anatomic and functional results were very satisfactory.

SUMMARY AND CONCLUSIONS

1. Conservative treatment of upward dislocation of the outer end of the clavicle has fallen into bad repute because of the lack of a proper splint.

2. It is believed that the elastic traction splint here presented will give satisfactory results in most cases in which the injury is confined to the acromioclavicular joint. The continuous traction which does not tend to decrease is the main and most important feature of the splint.

3. The elastic traction splint has given very satisfactory results in five out of six consecutive cases. It is simple, inexpensive, easily made and applied, and reasonably comfortable.

4. In cases in which the conoid and trapezoid ligaments are ruptured, the displacement is considerable and the splint is of no value. Open reduction alone can reasonably assure a satisfactory result.

5. The splint is applied for four weeks and for two weeks more the arm is supported in a sling. This should be sufficient to effect a cure. In case of recurrence, operative procedure is indicated.

Treatment of Crossed Eyes in Children.—The first step in treatment is to treat the parents. Tell them what can be done and what cannot. Insist that orthopedic treatment and lenses first be tried before any recourse is had to operation, and even in these it is to be continued until stereoscopic vision is established. Explain that the usual case should have the refraction measured, lenses prescribed and that glasses should be worn all the time and ocular exercises, etc., should be continued for at least six months; that all eyes can be straightened and that they must be not only for cosmetic reasons but in order to preserve the sight. Do not allow yourself to operate until sufficient orthopedic treatment has been given.—Wurdemann, H. V.: Crossed Eyes: Their Cure Without Operation, *Northwest Med.*, April, 1929.

THE FILTRABLE ELEMENTS OF THE TUBERCULOSIS VIRUS (TUBERCULOUS ULTRAVIRUS)*

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AND
A. SAENZ
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Numerous researches in the last few years have confirmed the hypothesis put forward by Fontes in 1910 regarding the filtrability of the tuberculosis virus, and have revealed the existence in cultures of the tubercle bacillus, as well as in tuberculous lesions, of certain elements which can pass through porous porcelain filters and produce in guinea-pigs lesions of a special type, as is evidenced by the fact that guinea-pigs inoculated with tuberculous filtrates never show (even after a survival of from six to eight months) an inoculation chancre with its satellite caseous adenitis, or the nodular visceral lesions which are generally obtained through the inoculation of tuberculous products. On the other hand, the glands in the vicinity of the point of inoculation become slightly swollen from the tenth to the fifteenth day and subsequently become normal again. Autopsies of animals having died from an intercurrent disease, or as the result of an emaciation syndrome, do not show any caseous glandular lesion. The entire lymphatic system, however, and especially the tracheobronchial glands, are slightly swollen. These glands are hard and sometimes contain liquid pus composed of polymorphonuclear leukocytes. It is possible to detect typical acid-fast bacilli on smears made from these glands after exhaustive examinations which require sometimes five or six hours. These bacilli are either isolated or, more frequently, grouped in masses containing numerous elements in the middle of an amorphous mass which can be colored with methylene blue (methylthionine chloride-U. S. P.). They are more easily found during the first two weeks and first two months after inoculation. After this delay they are likely to disappear.

Sometimes the infection produced by the inoculation of tuberculous filtrates is manifested solely by the temporary appearance of tuberculinic allergy. In such cases a temporary infection is produced which ceases with the destruction in the organism of the filtrable virus, this being the so-called labile virus of Arloing and Dufourt. Finally, in exceptional cases, after the inoculation of tuberculous filtrates, one may find discrete nodular lesions limited to a single organ (lung or spleen), but here again there is no trace of any inoculation chancre or of the customary satellite adenitis. These atypical forms of tuberculous infection in guinea-pigs, resulting from inoculations of tuberculous filtrates, are due to modifications in the virulence of acid-fast germs developing from filtrable elements of the tubercle bacillus. We have given the name of tuberculous ultravirus to the latter, in order to distinguish it from the bacillary, acid-fast form of the tuberculous virus.

Proof of the attenuation in virulence of acid-fast elements developing from tuberculous ultravirus is supplied by the fact that, when a healthy guinea-pig is inoculated with lesions containing tubercle bacilli (sometimes in great numbers) produced in another animal following inoculation with tuberculous filtrates, a typical tuberculosis is not observed but instead lesions analogous to those produced by the filtrable elements of the tubercle bacillus. It is only after a certain number of transfers that in most cases the virulence of these germs is finally increased, producing then in guinea-pigs a typical form of experimental tuberculosis. These facts have been observed by a large number of experimenters in France, particularly by Vaudremer;[1] Calmette, Valtis, Nègre and Boquet;[2] Arloing, Dufourt and Malartre;[3] Sergent, Durand, Charchanski Kourilsky and Benda;[4] Veber;[5] Nasta;[6] Nélis;[7] Armand-Delille, Saenz and Bertrand;[8] Lesbouyries and Verge,[9] and Rossi.[10] They have also been verified by several Italian, Roumanian, Russian, Belgian and German experimenters, as well as by certain American authors; for instance, Vannuci;[11] Verdina;[12] de Bonis;[13] Canelli and Bosco;[14] Cramarossa;[15] Bocchini;[16] Zuccóla;[17] Ottolenghi;[18] Casagrandi;[19] Loffreda;[18] Martinalli;[18] Nasso;[20] Vascellari,[21] and Gardenghi[18] in Italy; Lydia Rabinowitsch-Kempner;[22] Ludwig Lange[18] and Weichardt[18] in Germany; Mello[23] in Argentina; Van Beneden[24] and de Potter[25] in Belgium; Vassiliu and Iriminoiu,[26] and Bonciu and Jonesco[27] in Roumania; Sterling Okumewski[18] and Miss J. Misiewicz[28] in Poland; Miss Tougounof[29] in Russia; de Partearroyo[30] in Spain; Kimla[18] and Honly[18] in Czechoslovakia; and, finally, by Floyd and Herrick;[31] Mellon and Jost,[32] and Sweany[33] in America.

This new conception regarding the filtrability of the tuberculous virus, moreover, was made the subject matter of a report presented by one of us to the meeting of the International Union Against Tuberculosis recently held in Rome, the conclusions of which were

* From the Pasteur Institute.

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adopted almost unanimously by the scientists present at that meeting. It seems, therefore, to be beyond controversy and that it is useless to insist on these facts.[34] However, certain criticisms which have recently appeared in America on the filtrability of the tubercle bacillus by Cooper and Petroff [35] on the one hand, and by Thompson and Frobischer [36] on the other, require an answer.

These authors relate that they were able to detect in the glandular system of healthy guinea-pigs acid-fast bacilli, the proportion of animals harboring these germs being 33 per cent, according to Cooper and Petroff (five out of fifteen guinea-pigs examined by them), who hold that the bacilli found in the glands of guinea-pigs inoculated with tuberculous filtrates are either tubercle bacilli due to a spontaneous infection or more frequently paratuberculous bacilli (timothy grass bacilli), which healthy guinea-pigs might harbor in their glands. We may say right here that since the beginning of our experiments on the filtrability of the tuberculous virus we have several times endeavored to find whether the glandular system of healthy guinea-pigs might contain acid-fast bacilli. In not a single instance were we able to detect any acid-fast bacillary form. Similar researches with constantly negative results were carried out by Lydia Rabinowitsch-Kempner in Berlin. Likewise, Ralph Mellon and Elij Jost, who confirmed experimentally the filtrability of the tubercle virus, write as follows: "Exhaustive search of the smears of the lymph glands and lungs of twelve inoculated animals did not disclose the presence of any acid-fast bacilli." [32] Finally, Saenz,[18] in a systematic investigation on more than 200 healthy animals, was never able to detect in them any acid-fast bacillary form. The hypothesis of a spontaneous tuberculous infection in guinea-pigs is untenable, for it is universally recognized that such an infection is exceptional and practically nonexistent, except in breeding stations located on the grounds of certain sanatoriums for tuberculosis. On the other hand, the presence of acid-fast bacilli in the lymphatic system of guinea-pigs, especially during the first two months following inoculation, and their habitual disappearance thereafter, shows that the appearance of these bacilli is connected with the inoculation of filtrates. The fact, also, that acid-fast bacilli are found in the lymph glands of guinea-pig fetuses born of mothers inoculated subcutaneously with filtrates (as we have found ourselves, in collaboration with Boquet and Nègre,[2] and as was later confirmed by Arloing and Dufourt,[37] Rabinowitsch-Kempner, van Beneden,[38] de Bonis [39] and Nasso) shows evidently that a spontaneous infection cannot be in question. However, irrefutable proof that bacilli found in the glandular system of guinea-pigs after the inoculation of filtrates really originate from inoculated filtrable elements is supplied by the experiments we have carried out with Nègre, Boquet and Mlle. Certonciny,[40] which showed that when filtrable elements are inoculated in the peritoneal cavity, typical acid-fast bacilli are found in the lymph glands of the omentum, and in the omentum itself as well as in the leukocytes present in the effusion produced by the inoculation. Typical acid-fast bacilli are also found in the tissues and glands of other animals besides guinea-pigs, following inoculation with filtrates. F. de Potter, for instance, has shown the presence of acid-fast bacilli in the tissues of hens inoculated with filtrates of a culture of bacilli of the avian tuberculosis type. We also obtained, with Saenz,[41] the production of specific tuberculous antibodies, and were able to detect characteristic acid-fast bacilli without the presence of any lesion whatever in the lymph glands of a goat which was inoculated intravenously with tuberculous filtrates, as well as in the lymphatic system of a lamb born of a mother which was inoculated subcutaneously with the tuberculous ultravirus.

As to the hypothesis of Cooper and Petroff, and of Thompson and Frobischer, to the effect that the acid-fast bacilli found in the glandular system of guinea-pigs inoculated with filtrates are not tuberculous organisms but timothy grass bacilli, it is contradicted by the very experiments of these authors, who were unable to obtain the slightest growth from glands containing these acid-fast germs, although it is known that the timothy grass bacillus can be easily cultivated on all ordinary mediums. Moreover, the mere fact that the acid-fast organisms found in the glandular system of animals after inoculation with tuberculous ultravirus can after a certain number of transfers recuperate their virulence and produce in guinea-pigs typical lesions of experimental tuberculosis suffices to prove that they are attenuated tubercle bacilli and not the paratuberculous bacilli of timothy grass.

The experimental results obtained after inoculation of filtrates cannot be due to a faulty technic, as is insinuated by Cooper and Petroff. In our own experiments we have always used new Chamberland number L2 filter bougies, which were duly controlled by the addition of another organism (twenty-four hour culture of fowl cholera). We never exceeded a pressure of 20 cm., and filtration was always effected within from eight to ten minutes. It is necessary, however, to make allowance for a possible cause of error when the lymph glands of normal guinea-pigs previously injected with tuberculin are examined, for Saenz [42] has shown that in the centrifugated sediment of old tuberculin diluted 1:10 it is possible to find numerous cadavers of tubercle bacilli, the shape and tinctorial affinities of which are unimpaired, and that they can be easily discovered in the lymph glands of guinea-pigs inoculated subcutaneously with this diluted tuberculin. As Cooper and Petroff had tested with a hypodermic injection of 0.2 cc. of 1:10 tuberculin the animals in which they looked for bacilli, it is quite probable that the bacilli discovered by them in the lymph glands of fresh guinea-pigs were the dead bacilli contained in their tuberculin. This would explain why they were unable to obtain any growth when they tried to cultivate these organisms.

All the facts that we have summarized here agree to prove that the assertions of these authors cannot modify the conception which has now been adopted regarding the existence of filtrable elements derived from the tubercle bacillus. It remains to be determined, however, in what shape these elements go through porcelain

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40. Valtis, J.; Nègre, L.; Boquet, A., and Certonciny, A.: Compt. rend. Soc. de biol. **97**: 1667 (Jan. 4) 1928.
41. Valtis, J.; Saenz, A., and Monaldi, De Sanctis: Compt. rend. Soc. de biol. **99**: 1558 (Nov. 17) 1928. **97**: 477 (July 9) 1927.
42. Saenz, A.: Compt. rend. Soc. de biol. **99**: 1705 (Dec. 7) 1928.

filters. Since 1926 [43] we have insisted on the fact that nothing proves that they are the so-called granulations of Much, as Fontes [44] believed, for it has never been possible to find them even after prolonged centrifugation of tuberculous products. We have put forth the hypothesis that these granulations resolve themselves into smaller invisible elements which are able to go through porous filters. The recent researches of Kahn and Torrey [45] seem to confirm our conception, for these authors, when they were watching the development of tubercle bacilli under the microscope, saw that they resolved themselves into granulations of such minute size that they attained the limit of visibility with the most powerful lenses. It is therefore quite probable that it is under this form that the filtrable elements of the tubercle bacillus go through porcelain filters. This, however, is only a hypothesis, and only experiments which are now under way can elucidate this still obscure point.

43. Calmette, A., and Valtis, J. : Ann. de méd. **19:** 553 (June) 1926.
44. Fontes, A.: Ann. Inst. Oswaldo Cruz **2:** 55, 1920.
45. Kahn, M. C., and Torrey, J. C.: Am. Rev. Tuberc. **18:** 815 (Dec.) 1928.

THE CLINICAL VALUE OF SUNLIGHT THROUGH ULTRAVIOLET TRANSMITTING GLASS *

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This is a report of a study of the clinical value of sunlight transmitted through certain window glass substitutes, which are designed particularly to transmit a portion of the solar ultraviolet rays of a wavelength known to be of definite therapeutic value and which are excluded when sunlight passes through the usual type of window glass. In order to investigate the efficiency of this particular glass, a solarium was built on the roof of the hospital where children from the wards could be exposed regularly to the sunlight.

Our work commenced in May and continued through June. It was then interrupted through the summer and resumed again in October of the same year to continue until May of the following year. During the period of observation estimations were made of the blood calcium and phosphates, as well as of the hemoglobin. These estimations were made at the beginning of the exposures and repeated again at their termination, so that we might determine the clinical effect, and also concomitant changes in the inorganic salts of the blood and in the hemoglobin.

The wavelengths of the antirachitic range of ultraviolet rays are from 250 to 313 millimicrons. The ultraviolet rays from the sun between 180 and 290 millimicrons are cut off by the atmosphere, so that portion of the solar spectrum with which we are concerned is generally accepted as having wavelengths between 290 and 313 millimicrons.

The biologic tests conducted by Eddy, Fleming, Tisdall and Brown, and by the Council on Physical Therapy of the American Medical Association, have demonstrated the effectiveness of exposure to sunlight through such glass.

* The glass used was Vitaglass, furnished by the Vitaglass Corporation, New York.

* From the Pediatric Department of the New York Post-Graduate Medical School and Hospital.

Eddy [1] has shown that sunlight passing through Vitaglass has enough of the ultraviolet rays in the antirachitic range to afford complete protection to animals fed on a diet that produced marked rickets in rats exposed for the same length of time under ordinary glass. These observations were each of thirty days' duration and were conducted in New York during the months of January to May. It was pointed out that there are sufficient curative rays transmitted by Vitaglass and demonstrated to be effective even in the month of January in this locality. Fleming [2] has also shown that there are sufficient ultraviolet rays in winter sunlight in Washington, D. C., to permit normal calcification of the bones and also to produce a greater gain in weight in rats exposed to sunlight through Vitaglass and fed on a diet that produced marked rickets in a similar group of rats of the same age which were exposed for a like period under ordinary window glass. These observations were made from December to April.

Tisdall and Brown [3] demonstrated by means of roentgenographic examination of the bones of rats fed on a rachitogenic diet that there was slight but definite antirachitic effect of the rays through Vitaglass in the months of December, January and February in the latitude of Toronto, although, from the inorganic phosphorus estimation of the blood of the rats, the antirachitic effect was not evident until about the first of March.

The Council on Physical Therapy [4] of the American Medical Association investigated the efficiency of various window glass substitutes. The tests consisted of placing a group of chickens under different sunlight environments, and on a diet designed to produce leg weakness and bowing. These observations were made during January and February. It was shown that the chickens receiving sunlight through Vitaglass grew and developed as rapidly as did the group under ordinary glass which, in addition, received fifteen minutes' daily exposure to ultraviolet radiations from a mercury vapor arc at a distance of 1 meter. They conclude that Vitaglass is sufficiently permeable to the effective rays to have a decidedly beneficial effect during the winter months in the latitude of Boston.

TABLE 1.—*Permeability of Glass After Solarization*

Wavelength, Angstroms	Clear Sample, Per Cent	Cathedral Sample, Per Cent
3,200	64	57
3,085	42	36
2,970	18	14

Glass, as well as other material, when exposed to sunlight undergoes some degree of chemical and physical change resulting in a reduction in the amount of ultraviolet rays that it transmits. Such a change is known as solarization.

The glass used to glaze our solarium had been installed thirty-six days prior to the beginning of our observation, and to what degree the process of solari-

1. Eddy, W. H.: A Test of Vitaglass Panes as Transmitters of Curative Antirachitic Rays in the City of New York During the Winter and Spring of 1928, to be published.
2. Fleming, W. D.: The Antirachitic Efficiency of Winter Sunlight of Washington, D. C., Mil. Surgeon **62:** 592-609 (May) 1928.
3. Tisdall, F. F., and Brown, Alan: Antirachitic Value of the Sun's Rays Through Various Special Window Glasses, Am. J. Dis. Child. **34:** 744 (Nov.) 1927.
4. Report on Window Glass Substitutes, J. A. M. A. **88:** 1562-1567 (May 14) 1927.

zation had proceeded during that time the United States Bureau of Standards [5] makes the following report:

Exposure in Washington of a sample of Vitaglass directly to the sun for 123 hours (between 9 a. m. and 3 p. m. during June, July and August) decreased the transmission from 47 to 35 per cent. Our tests show that the greatest decrease in transmission occurs during the first few weeks' exposure. The average transmission of Vitaglass at 302 millimicrons after complete degeneration by the mercury arc is about 25 per cent for a thickness of 2.3 mm.

It should be noted that the Bureau of Standards has figured its percentage of transmission of ultraviolet light at 302 millimicrons wavelength. This would mean a considerably higher percentage of ultraviolet transmission within the accepted therapeutic range from 302 up to 313 millimicrons, as indicated by Stockbarger's report on our own glass, shown in table 1.

The extent of solarization has often led to misconceptions. Instead of this process continuing, as was formerly believed, until the glass did not permit any more of the therapeutic ultraviolet rays to permeate it, it was found by the United States Bureau of Standards, and substantiated by our own work and the work of others, to pass through the solarization period during the first few weeks. At the end of that time solarization was complete, the glass still remaining permeable to sufficient amounts of ultraviolet rays in the therapeutic range to be of decided value.

One and one-half years after the installation of our solarium, samples of both the clear and the cathedral Vitaglass were removed and sent to Stockbarger,[6] who gave the report summarized in table 1.

5. Letter Circular 235, Third Revision, Bureau of Standards Department of Commerce, Washington, D. C., Jan. 14, 1928.
6. Stockbarger, D. C.: Massachusetts Institute of Technology, personal communication to the authors, Nov. 6, 1928.

Our solarium had a southern exposure, and was 5 feet 10 inches long, 7 feet wide, 7 feet high at the entrance and 5 feet 4 inches high at the extreme end. The roof sloped toward the south. In the roof and two sides the translucent cathedral Vitaglass was installed, while the end facing south was glazed with clear, transparent Vitaglass. The solarium was large enough for the comfortable exposure of five or six children at once. For the comfort of the children steam pipes were installed for heat, so that they would not be subjected to exposure at low temperatures during the winter months and that the temperature inside the solarium would correspond to the temperature of the adjoining room. Since smoke, dust and moisture somewhat reduce the amount of available ultraviolet rays, the glass was brushed daily and thoroughly washed once a week to remove dust particles and soot that had accumulated.

In our series we have thirty-five cases, which we have divided, for the purpose of comparison, into three groups. The first group includes the patients who received exposures during the months of May and June. The second group consists of those exposed between the months of October and January inclusive, and the third group received exposures during the months of February, March and April. The children were exposed with the clothing removed, so that the entire skin surface would receive the maximum amount of sunlight. The length of the initial exposures varied according to the time of year, thirty minutes being sufficient to produce an erythema during the months of May and June while in the winter months two hours was well tolerated in most cases. At each subsequent exposure the length of time was increased by thirty minutes up to a maximum of from three to five hours. Exposures were given daily except when it was raining,

TABLE 2.—*Observations in Group 1, Exposed During May and June* *

Case	Name	Age Yr.	Age Mo.	Duration of Test, Days	Hours of Exposure	Blood Calcium, Mg. per 100 Cc. First	Last	Inc.	Dec.	Blood Phosphates, Mg. per 100 Cc. First	Last	Inc.	Dec.	Hemoglobin, per Cent First	Last	Inc.	Dec.	Weight First Lb.	Oz.	Last Lb.	Oz.	Gain Lb.	Oz.	Loss Lb.	Oz.	Tanning
1	S. D.	3	3	26	91	10.5	11.5	1.0	...	5.2	10.7	5.5	...	75	70	..	5	21	9	25	4	3	11	..	..	Marked
2	C. D.	4	9	35	77¾	12.8	10.8	...	2.0	6.4	13.1	6.7	...	98	76	..	22	35	..	41	1	6	1	..	..	Marked
3	S. W.	3	4	34	63¾	10.6	10.8	0.2	...	5.0	6.2	1.2	...	55	67	12	..	29	8	33	11	4	3	..	..	Slight
4	E. R.	2	2	28	78	11.2	11.1	...	0.1	6.0	6.5	0.5	...	60	62	2	..	24	2	25	12	1	10	..	..	Marked
5	B. S.	1	4	27	50¼	11.4	11.9	0.5	...	5.7	5.0	...	0.7	90	82	..	8	21	4	22	8	1	4	..	..	Moderate
6	M. M.	8	..	34	92	10.0	10.5	0.5	...	4.8	4.8	Unchanged		59	56	6	..	61	8	62	..	..	8	..	..	Slight
7	C. M.	..	9	11	7¾	11.0	11.3	0.3	...	6.6	7.0	0.4	...	75	79	4	..	19	..	19	3	..	3	..	..	Slight
8	S. G.	1	7	31	106½	10.3	9.0	...	1.3	3.0	5.4	2.4	...	59	..	..	..	14	8	16	12	2	4	..	..	Marked
9	H. R.	..	11	35	99½	9.6	8.0	...	1.6	2.9	6.2	3.3	...	56	86	30	..	12	14	14	8	1	10	..	..	Marked
10	F. A.	2	9	31	73¼	10.8	9.9	...	0.9	12.2	6.5	...	5.7	70	60	..	10	24	..	23	..	2	..	..	..	Slight
11	A. P.	4	2	33	89½	9.2	10.1	0.9	...	5.6	6.1	0.5	...	80	82	2	..	35	..	34	..	..	..	1	..	Marked

* In the tables the normal blood inorganic phosphates ranged from 3.5 to 5.0 mg. per hundred cubic centimeters; the normal blood calcium from 9.6 to 11.0 mg. and the normal hemoglobin (chemical estimation of iron) from 15.5 mg. in girls to 17.0 mg. in boys.

TABLE 3.—*Observations in Group 2, Exposed from October to February*

Case	Name	Age Yr.	Age Mo.	Duration of Test, Days	Hours of Exposure	Blood Calcium, Mg. per 100 Cc. First	Last	Inc.	Dec.	Blood Phosphates, Mg. per 100 Cc. First	Last	Inc.	Dec.	Hemoglobin, Mg. per 100 Cc. First	Last	Inc.	Dec.	Weight First Lb.	Oz.	Last Lb.	Oz.	Gain Lb.	Oz.	Loss Lb.	Oz.	Tanning
1	M. C.	1	8	40	82	11.2	11.0	...	0.2	5.9	5.0	...	0.9	11.1	10.6	...	0.5	17	..	17	8	..	8	..	..	None
2	F. K.	3	..	31	25	11.9	10.2	...	1.7	5.4	7.3	1.9	...	11.6	11.6	Unchanged		7	14	9	..	1	2	..	..	None
3	G. S.	3	..	51	60	10.8	10.3	...	0.5	5.2	4.3	...	0.9	11.9	12.5	0.6	...	22	..	22	3	..	3	..	..	Slight
4	L. S.	2	8	19	25½	10.6	10.2	...	0.4	6.6	6.2	...	0.4	8.2	11.5	3.3	...	17	..	16	14	..	..	..	2	None
5	E. B.	8	..	19	28½	11.0	10.5	...	0.5	6.8	6.0	...	0.8	11.8	10.9	...	0.9	50	..	50	..	Unchanged				None
6	M. C.	1	9	39	32	9.6	10.7	1.1	...	2.7	4.8	2.1	...	9.8	6.2	...	3.6	19	4	18	10	..	..	..	10	None
7	F. G.	..	7½	14	15	11.8	11.3	...	0.5	2.6	4.8	2.2	...	....	8.1	...	...	10	6	11	4	..	14	..	..	None
8	B. F.	..	3½	27	29½	10.0	14.3	4.3	...	5.0	5.6	0.6	...	10.9	15.9	5.0	...	10	14	10	9	..	..	..	5	None
9	P. M.	1	9	19	32½	9.9	10.3	0.4	...	4.5	3.9	...	0.6	8.8	5.6	...	3.2	15	10	18	2	2	8	..	..	Slight
10	R. L.	9	8	17	19½	11.0	11.5	0.5	...	3.8	3.4	...	0.4	8.9	12.7	3.8	...	61	15	64	8	2	9	..	..	None
11	A. P.	4	9	29	41½	9.7	9.2	...	0.5	4.8	5.9	1.1	...	13.9	15.1	1.2	...	37	..	38	6	1	6	..	..	None
12	R. B.	7	8	16	25	9.9	11.3	1.4	...	4.4	4.0	...	0.4	10.5	13.8	3.3	...	29	4	Leg in cast						None

snowing or very cloudy. In the winter months the midday sun between 10:30 a. m. and 2 p. m. was utilized, while during the spring months the longer days made the hours between 10 a. m. and 3 p. m. suitable. The children exposed were convalescents taken from the wards three or four weeks before their discharge from the hospital. Their diet was the average routine hospital diet. No cod liver oil or other medication was administered which might effect a change in the inorganic calcium and phosphates of the blood. Each patient received an average of fifty-two hours' exposure.

In our series of thirty-five cases there were twenty-eight cases, or 80 per cent, that showed an increase in either the blood calcium or the blood phosphates or both, and of these, fourteen, or 50 per cent, showed an increase of both blood calcium and phosphates. Of the remaining seven cases, or 20 per cent, six showed a decrease of both blood calcium and phosphates, while one showed a decrease of the blood phosphates but the blood calcium remained unchanged. All remained, however, within the normal range. In each of the seven cases which did not show any increase in blood calcium or phosphates, the failure to increase could easily be explained by some deterrent pathologic condition:

Patient 10 (table 1) had had a mastoidectomy one day after the test began. She did well, however, became slightly tanned, and gained 2 pounds (1 Kg.) during the thirty-one days of the test.

Patient 1 (table 2) had pulmonary tuberculosis and eczema, and subsequently died following an acute respiratory infection.

Patient 3 (table 2) was very emaciated, with chronic rheumatic arthritis. There was a slight amount of tanning of the skin.

Patient 4 (table 2) was septic, having a perinephritic abscess which had been incised and drained seven days before the beginning of the test.

Patient 5 (table 2) had chronic cardiovalvular disease with decompensation, edema of the feet and ankles, and enlargement of the liver, and subsequently died.

Patients 2 and 6 (table 3) had acute chorea. Both of them improved and patient 6 showed a moderate pigmentation of the skin.

Attention is called to four cases, namely, cases 8 and 9, table 1, and cases 6 and 7, table 2. In these the blood phosphates increased from an exceedingly low point to the upper limits of normal and above. Clinically these children showed improvement in their appetite, physical well being, color and musculature. There was no perceptible pigmentation of the skin, until the latter part of February, except for one case in January and one case in October, in both of which there was a slight tanning. From the last of February until June there was demonstrated a slight to a well tanned skin in nineteen of twenty-three cases in groups 1 and 3 (tables 1 and 3).

CONCLUSIONS

Infants and children may be given sun baths of two or three hours daily throughout the winter, not as a substitute for ultraviolet lamp irradiation in the cure of disease but as a prophylactic measure.

There are ample ultraviolet rays in the antirachitic range in this latitude during the winter to be of definite value to those receiving them through this type of window glass when exposures are made in the direct path of the sun's rays, since enough of these rays penetrate the glass to prevent rickets and spasmophilia in a normal, properly fed infant.

It is unfortunate that so much has been said about solarization that the general impression has been gained that after the glass is aged there is no therapeutic effect. This is untrue, as is shown by this report.

125 East Thirty-Ninth Street.

TABLE 4.—*Observations in Group 3, Exposed from February to May*

Case	Name	Age Yr.	Age Mo.	Duration of Test, Days	Hours of Exposure	Blood Calcium, Mg. per 100 Cc. First	Blood Calcium, Mg. per 100 Cc. Last	Blood Calcium, Mg. per 100 Cc. Inc.	Blood Calcium, Mg. per 100 Cc. Dec.	Blood Phosphates, Mg. per 100 Cc. First	Blood Phosphates, Mg. per 100 Cc. Last	Blood Phosphates, Mg. per 100 Cc. Inc.	Blood Phosphates, Mg. per 100 Cc. Dec.	Hemoglobin, Mg. per 100 Cc. First	Hemoglobin, Mg. per 100 Cc. Last	Hemoglobin, Mg. per 100 Cc. Inc.	Hemoglobin, Mg. per 100 Cc. Dec.	Weight First Lb.	Weight First Oz.	Weight Last Lb.	Weight Last Oz.	Weight Gain Lb.	Weight Gain Oz.	Weight Loss Lb.	Weight Loss Oz.	Tanning
1	S. R.	..	7	28	43	11.0	10.8	...	0.2	5.1	5.4	0.3	...	9.2	11.7	2.5	...	11	1	15	3	4	2	..	..	None
2	M. D.	7	10	26	24	11.4	9.4	...	2.0	4.6	4.2	...	0.4	17.0	....	...	...	48	8	49	..	..	8	..	..	None
3	D. G.	3	3	43	42	9.7	11.1	1.4	...	4.9	4.4	...	0.5	8.6	11.0	2.4	...	20	..	20	3	..	3	..	..	Slight
4	S. G.	4	9	21	17	11.4	12.4	1.0	...	4.2	5.0	0.8	...	16.8	....	...	...	43	12	44	4	..	8	..	..	None
5	H. J.	7	..	17	45	10.2	11.2	1.0	...	4.7	5.1	0.4	...	13.6	15.9	2.3	...	51	10	49	..	..	..	2	10	Moderate
6	A. L.	8	10	20	45	10.3	10.3	Unchanged		5.7	5.3	...	0.4	10.4	15.2	4.8	...	60	8	62	8	2	..	..	..	Moderate
7	R. D.	1	1	20	30½	8.9	12.3	3.4	...	4.4	6.2	1.8	...	7.1	15.0	7.9	...	21	11	20	14	..	..	..	13	Marked
8	C. D.	..	1½	31	56	9.6	10.2	0.6	...	5.2	6.0	0.8	...	8.5	12.2	3.7	...	6	2	7	14	1	12	..	..	Slight
9	A. K.	3	8	19	37¼	11.2	11.5	0.3	...	5.5	6.1	0.6	...	10.6	9.6	...	1.0	30	..	31	9	1	9	..	..	None
10	H. P.	3	..	27	61½	10.4	11.3	0.9	...	4.8	5.9	1.1	...	11.9	13.2	1.3	...	26	..	28	8	2	8	..	..	Marked
11	S. P.	2	7	28	68	10.3	11.2	0.9	...	5.4	6.3	0.9	...	14.0	15.6	1.6	...	21	3	22	14	1	11	..	..	Marked
12	N. S.	1	10	76	101½	10.4	11.2	0.8	...	4.1	4.2	0.1	...	10.6	....	...	...	21	2	22	1	..	15	..	..	Marked

THE BOGY OF HEART-BLOCK IN DIGITALIS THERAPY*

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It is well known that heart-block may result from digitalis medication. That this event is not necessarily a cause for apprehension or for cessation of further administration of the drug is the burden of this paper.

One notes cases of severe cardiac insufficiency in which digitalis has not been given adequately because of the fear of the production of heart-block. It is my opinion that this fear implies a misconception of digitalis therapy and that the error is rather prevalent.

TOXIC EFFECTS OF DIGITALIS

There are many symptoms and signs of the toxic action of digitalis. Among these are gastric symptoms, sinus arrhythmia, extrasystoles, "coupled rhythm," ventricular escape, pulsus alternans, auricular paroxysmal tachycardia, auricular fibrillation, ventricular paroxysmal tachycardia and ventricular fibrillation. Not all of these are present, of course, in a single individual.

Robinson and Wilson [1] reported an important experimental study of the relation of the various effects of digitalis to the minimal lethal dose of the drug. They used cats. Coupled rhythm and ventricular escape were observed at about 70 per cent of the minimal lethal dose. The appearance of prolongation of the P-R

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1. Robinson, G. C., and Wilson, F. N.: A Quantitative Study of the Effect of Digitalis on the Heart of the Cat, J. Pharmacol. & Exper. Therap. **10**: 491 (Jan.) 1918.

interval (partial heart-block) varied in different animals, occurring on the average at about 50 per cent of the minimal lethal dose. The therapeutic effects were present at from 25 to 50 per cent of the minimal lethal dose. This experimental study has been found applicable to human beings.[2] There is abundant evidence that the mechanism by which digitalis kills is the induction of ventricular fibrillation, an arrhythmia that is incompatible with the onward propulsion of the blood and therefore fatal. There are very few reports of recovery from ventricular fibrillation.

So far as I am aware there are no records of adequately studied patients who have died as a result solely of heart-block produced by digitalis medication.

HEART-BLOCK WITH GOOD CARDIAC EFFICIENCY

Patients have been observed with complete heart-block persisting for years with little if any reduction in the tolerance of exercise. Lewis[3] reports a striking example in an Englishman, aged 33, whose heart rate for fifteen years averaged 30 to 35 a minute with an occasional acceleration to 48; complete heart-block was present. This man experienced no untoward symptoms even after strenuous exertion; he prided himself on his sprinting power and had recently run in races. I have examined a carpenter, aged 64, in whom there was a convincing history of complete heart-block for thirty years. He had worked steadily at his trade with no evidence of circulatory insufficiency. The original diagnosis was made in a hospital in Copenhagen and has been repeatedly confirmed to date. Another case has been reported[4] in which the patient, in spite of total heart-block, made a satisfactory response to heavy muscular work. The patient was a man, aged 25; the heart-block was attributed to the effect of some infectious disease in childhood.

These three cases are not, of course, the total in my experience and in the literature but should suffice for the purpose of this article. It is obvious that in each of them the lesion was limited to the junctional tissues; every day experience demonstrates that usually the heart muscle is more generally impaired and a definite degree of cardiac insufficiency is, therefore, present.

PHYSIOLOGY

Heart-block interferes with the passage of the auricular impulses across the junctional tissues to the ventricles. When the block is complete the ventricle would fail to contract were it not that certain of the specialized tissues in the ventricle possess the power to initiate contractions though at a rate lower than that of the normal impulse center, the sinus node.

The rate at which the contractions are initiated by the ventricular tissues is usually below forty a minute. However, it has been found[5] that when the action of digitalis causes the interference with conduction, the point of block is on the auricular side of the atrioventricular node or in the node itself. This node has a rate of impulse formation that averages from 40 to 60 and, if the point of block is above this node, acts as the impulse center of the ventricle. Whatever the impulse center for the ventricle when it is completely dissociated from the auricle by heart-block, the rate will not increase materially in response to exercise. Nevertheless, the adjustments of the circulation in complete heart-block are so perfect that the low rate has but little effect. Lewis[6] states that the heart rate must drop below 20 a minute before the rate alone causes much disturbance in the circulation.

WHY HEART-BLOCK IS CONSIDERED TO BE SERIOUS

The reason why heart-block is commonly regarded as a serious condition appears to be obvious. Heart-block arising spontaneously, that is, not drug-induced, is often a permanent condition and associated with some serious form of heart disease. The life expectancy of the individual is reduced. In a few cases the Adams-Stokes syndrome ensues and produces the impressive attacks of ventricular standstill and sometimes sudden death of the patient. Many of these conditions fail to respond favorably to treatment.

The seriousness of the condition of such patients is not due to the heart-block but to the various lesions of the particular form of heart disease (syphilitic, arteriosclerotic) with which the disturbance of conduction is associated. These alterations need not be discussed here since they cannot be produced by digitalis.

THERAPEUTIC HEART-BLOCK

A block between the auricles and ventricles of a degree sufficient to protect the ventricle from receiving an excessive number of stimuli from the auricle is just what one attempts to achieve by digitalis medication. If the benefit so obtained in the treatment of rapid hearts with circulatory insufficiency is so great that it constitutes the chief basis for the popularity of digitalis as a cardiac medicament, it seems decidedly illogical, perhaps, to fear so greatly an increase in the degree of digitalis-induced heart-block.

There are cases in which the disturbance of conduction shifts back and forth from partial to complete heart-block. The Adams-Stokes attacks may follow the change to complete block because of delay of the ventricular centers to initiate impulses. In such patients the administration of digitalis may stabilize the situation by keeping the heart-block complete; and the ventricular tissues, once starting the contractions, continue to do so.

Digitalis medication is used in complete heart-block with cardiac insufficiency. The drug cannot make the block more complete since that stage is already present, but it may improve the quality of the contractions of the ventricular muscle.

SUMMARY

The fear of the production of heart-block by digitalis medication seems to indicate a misconception of the therapeutic use of this drug.

Heart-block is not a prominent feature of the toxic action of digitalis. In fact, some degree of impairment in auriculoventricular conduction usually appears at the dosage associated with the therapeutic effects.

As far as I am aware there are no records of adequately studied patients who have died solely as a result of digitalis-induced heart-block.

Complete heart-block may sometimes be present for years in patients who experience little if any reduction in their ability to perform heavy muscular work.

The ventricle possesses tissue that is capable of initiating contractions, and the circulation adjusts to the slowed rate without untoward symptoms.

Heart-block, not drug-induced, is usually associated with some serious form of heart disease whose lesions

2. Reid, W. D.: Some Toxic Effects of Digitalis, J. A. M. A. **81**: 435 (Aug. 11) 1923.
3. Lewis, Thomas: Clinical Disorders of the Heart Beat, ed. 6, Chicago, Chicago Medical Book Company, 1925, p. 34.
4. Liljestrand, G., and Zander, E.: Physiology of Heart in Uncomplicated Total Heart Block, Acta med. Scandinav. **66**: 501, 1927; Cardiovascular Review in New England, J. Med. **200**: 128 (Jan. 17) 1929.
5. Lewis, Thomas; Meakins, J. C., and White, P. D.: The Susceptible Region in A-V Conduction, Heart **5**: 289, 1913-1914.
6. Lewis, Thomas: The Mechanism and Graphic Registration of the Heart Beat, ed. 3, London, Shaw & Sons, Ltd., 1925, p. 420.

are not limited to the junctional tissues. It is the widespread and often progressive lesions of these diseases which doubtless have caused heart-block to be considered serious.

The production of therapeutic heart-block of a degree sufficient to slow the ventricular rate to normal, in such conditions as auricular fibrillation with an accelerated heart (ventricular) rate, is an established principle in the use of digitalis medication. It is occasionally beneficial to convert partial into complete heart-block.

Digitalis is often of benefit in complete heart-block with insufficiency of the heart.

CONCLUSIONS

The inordinate fear of the production of heart-block by digitalis may be disastrous in those cases in which the patient's only chance is dependent on the full therapeutic effects of the drug.

Digitalis should be administered until beneficial results are obtained or there is evidence of toxic effects.

ALLERGIC PURPURA *

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AND
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ST. LOUIS

In a previous article, we [1] called attention to the occurrence of allergy with Henoch's purpura and cited three cases in which this association existed. During the past two years, six similar cases have been observed. In all a "food allergy" was demonstrated. By deliberate feeding of the offending allergens, hemorrhage into the skin and usually one or more of the accompanying symptoms and signs of Henoch's purpura could be demonstrated. These included abdominal pain, joint inflammation, urticaria and bleeding from mucous membranes. An associated nephritis was present in only one case.

The natural history of Henoch's purpura has always presented a varying picture which has made its etiology baffling. Osler,[2] who took a particular interest in the condition, reported some series of cases over a period of nineteen years. He stressed particularly the association of skin lesions and visceral symptoms. Purpura, urticaria, angioneurotic edema and erythema multiforme comprised the erythema group, whereas abdominal pain, acute arthritis and nephritis were the frequently accompanying manifestations. He therefore classified the condition under the broad generalization "erythema group with visceral symptoms."

A variability in presenting symptoms is characteristic of this condition. Sometimes there is purpura and abdominal pain, the typical Henoch's syndrome. There may be urticaria or angioneurotic edema and abdominal pain with or without acute joint inflammation, or any of these singly. The presentation of abdominal pain alone has led to a sufficient number of mistaken diagnoses and consequent laparotomies to justify a compilation of these cases.[3] Nephritis is a complication rather than a primary lesion.

With the development of knowledge of the subject of allergy, it became evident that urticaria may occur in hypersensitive individuals after the ingestion of foodstuffs to which they are intolerant. Moreover, abdominal pain occurs in some of these cases. Morris [4] reported a typical case of such urticaria with abdominal symptoms, in which he secured a bit of gastric mucosa in the tip of the stomach tube and, microscopically, this revealed an intense edema. In another similar case of food intolerance with abdominal pain, smooth muscle spasm of the transverse colon was demonstrated during an attack by means of roentgenograms of a barium enema.[5] Since the characteristic lesions of allergy are edema and smooth muscle spasm, it becomes highly probable that the cases dealt with here were allergic in nature.

The similarity of these cases to those of the erythema group with visceral symptoms led to the suspicion that the two conditions had a common etiology and were due to allergy. Therefore, in analyzing the cases reported here, note was made of the following: a family history of allergy, a history of associated allergic manifestations, the presence of positive skin reactions and, of most importance, the production of symptoms after the deliberate feeding of suspected allergens. The latter fact could be demonstrated in six cases and, in two, Henoch's purpura and allergy coexisted, but the offending food that caused symptoms was not definitely established. In nine other cases of known allergy, a history of purpura was obtained.

It is of interest that, in 1914, the date of Osler's [6] last publication on the subject, allergy as a clinical entity was just coming to be appreciated. Osler remarked in that article that perhaps anaphylaxis was the key that would open the door to this mystery. Despite this suggestion by so able an observer, it was not until thirteen years later that the correctness of his suggestion was proved.

It has been suggested from time to time that purpura is an allergic phenomenon, but no convincing facts were advanced to substantiate this contention. The one demonstration that has linked purpura with allergy is its occasional occurrence in serum sickness, which is a condition of hypersensitiveness resembling allergy. It is noteworthy that here, too, joint and renal manifestations occur as they do, although in somewhat different forms, in Henoch's purpura.

As edema and smooth muscle spasm are the characteristic lesions of allergy, the purpura in the cases presented here must be explained. In urticaria there is an edema into the skin, and the edema fluid is rich in protein and comes from the blood serum that passes through permeable capillaries.[7] Certain urticarial cases are associated with purpura in which the red blood cells pass through the capillary walls. Examples of this are the so-called urticaria hemorrhagica; the purpura which at times occurs in an area of angioneurotic edema, and also the occasional occurrence of purpura with the urticaria of serum sickness. With the variety of purpura that typifies the cases described here, no edema surrounds the hemorrhagic spots and one must consider either passage of red blood cells without serum elements, which is most unlikely, or an actual capillary rupture and therefore an atypical lesion of allergy.

Of the following reports, one case is given in detail and the others in abstract.

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* From the Department of Internal Medicine, Washington University School of Medicine, and the Barnes Hospital.

1. Alexander, H. L., and Eyermann, C. H.: Food Allergy in Henoch's Purpura, Arch. Dermat. & Syph. **16**: 322 (Sept.) 1927.
2. Osler, William: Am. J. M. Sc. **110**: 628, 1895; **127**: 1, 1904; Brit. M. J. **1**: 517, 1914.
3. Withington, C. F.: Boston M. & S. J. **165**: 511, 1912.
4. Morris, R.: Am. J. M. Sc. **128**: 812, 1904.
5. Eyermann, C. H.: J. Missouri M. A. **24**: 129 (April) 1927.
6. Osler (footnote 2, third reference).
7. Török, L., and Hari, P.: Arch. f. Dermat. u. Syph. **65**: 21, 1903.

REPORT OF CASES

CASE 1.—*History.*—A steel mill foreman, aged 50, entered Barnes Hospital, Feb. 2, 1928, because of abdominal pain, black and blue spots on the legs, painful joints, and puffiness of the face and ankles. The patient's father and mother had both died during middle age of dropsy. There was no history of allergic manifestations. The patient had had the usual childhood diseases, and typhoid, malaria and smallpox before the age of 20—all without complications. At 21 he began to have attacks of abdominal pain, coming on irregularly and associated with bloating and indigestion. At one time the stools were tarry. This condition lasted off and on for several years and gradually disappeared. There was no history of venereal disease, and his habits were moderate. No allergic symptoms were present.

Present Illness.—Dec. 8, 1927, the patient went to work feeling well. During the day he began to develop pain in both knees, which soon became so severe that he had to be taken home. This was followed by pains in both ankles, elbows and shoulders. Soon redness and swelling enveloped all these joints. Apparently there was little or no fever. Within a few days, bluish spots began to appear over the body, particularly below the knees, until the legs and feet were covered with small black and blue blotches. Rest in bed and local applications caused the joint manifestations to disappear, but the discoloration of the legs remained for weeks, although gradually fading.

Within a few days after the onset of these symptoms, the patient complained of gas and a generalized severe abdominal pain. This persisted with varying severity until admission, about two months later. Occasionally there was vomiting. Nosebleeds and tarry stools occurred a few times. A few days before admission, puffiness of the ankles and face appeared. The urinary output became decreased and severe headaches developed. The patient was told that his kidneys were affected and an appendectomy was advised because of the abdominal pain. He entered the hospital for diagnosis.

Physical Examination.—The temperature, pulse and respirations were normal. The patient appeared to be in considerable pain. The pathologic observations were as follows: There was moderate undernourishment. The skin and mucous membranes were pale, except the legs, which were covered with crops of fading purpuric spots. A few of these were found on the chest and abdomen. There was a little puffiness about the eyes and ankles. The teeth were dirty but in fair repair. The heart and lungs were normal. The blood pressure was 118 systolic and 82 diastolic. The abdomen was slightly distended and there was a diffuse tenderness. The liver edge was felt 3 cm. below the right costal margin and was not thickened.

Laboratory Observations.—The red blood cells numbered 3,370,000, and the white blood cells, 8,850. The hemoglobin was 52 per cent; neutrophils, 67; lymphocytes, 27; transitionals, 3; eosinophils, 2, and basophils, 1 per cent.

There was a pallor of the erythrocytes with slight anisocytosis and poikilocytosis. The clotting time (Howell) was eighteen minutes; the clot retracted. The bleeding time was four and one-half minutes, and the platelet count was 264,000.

Urinalysis showed a specific gravity of 1.010; albumin, 4+; many red blood cells; a moderate number of unclumped white blood cells, and a few hyaline casts. The phenolsulphonphthalein test, showed an output of 36 per cent the first hour and of 29 per cent the second hour, making a total of 65 per cent. The blood nonprotein nitrogen was 31 mg. per hundred cubic centimeters. Stool examination for blood by the guaiac test was 3+. Intradermal tests with allergens were negative.

Course in Hospital.—In the belief that this was a typical case of Henoch's purpura, dietary manipulations were tried. A milk, wheat, egg-free diet was instituted, with immediate relief of abdominal distress. Each of these foods was then added in turn and it was found that, after one glass of milk, pain in the abdomen occurred within four hours. This procedure was repeatedly done and milk consistently induced this pain, but there was complete absence of it when no milk was taken. On one of these occasions a fresh crop of purpuric spots occurred on the legs. No other food was incriminated.

During his stay in the hospital, the patient lost the edema. The blood in the stools disappeared, but albumin, red blood cells and casts in the urine persisted. The specific gravity remained fixed around 1.010. There was no reduction of the phenolsulphonphthalein excretion and the blood nonprotein nitrogen did not rise. The anemia improved a little. No joint manifestations or further purpura appeared.

He was discharged, March 2, but returned, March 22. He had contracted a cold, March 15, and following this there developed a generalized edema. He remained in the hospital for two months. During this time he presented a picture typical of hemorrhagic nephritis. At one time during his stay he was given milk by mistake and this was followed within a few hours by acute abdominal pain and fresh purpuric spots on the legs.

The patient was followed subsequently for many months and, although there were no further acute symptoms of Henoch's purpura, a subacute nephritis developed and persisted. He has not been heard from for the past year.

It is noteworthy that, although nephritis is a frequent complication of Henoch's purpura, this is the only case recorded in this series.

CASE 2.—A boy, aged 5 years, was seen first in 1921 with the chief complaint of bronchial asthma. A positive family history of allergy was obtained in that the father had hay-fever. The child had had eczema as an infant. Positive cutaneous reactions to egg, potato and wheat appeared and the asthma was controlled by avoidance of these foods. A fair tolerance to wheat was obtained when this food was taken in increasing amounts, and gradually the other offending foods were added to the diet.

The child was seen again in 1927. He was suffering then from attacks of acute abdominal pain, and blue spots on the lower extremities. Positive skin reactions to egg, potato and wheat were again obtained. When these foods were deliberately allowed to be eaten, acute abdominal pain and large purpuric blotches on both legs occurred within a few hours.

CASE 3.—A woman, aged 32, first observed in 1921, complained of attacks of abdominal pain associated with sore throats and headaches, and of the frequent appearance of purple spots, particularly on the arms and legs. The sore throats were afebrile and examination at the time of this complaint showed as the only abnormal finding a moderately edematous tongue which interfered with deglutition. The tonsils had been removed and there were no signs of inflammation. Physical examination was otherwise negative. Skin tests were negative. As the result of dietary manipulations, it was found that egg, chicken, beans, fish and lamb invariably induced abdominal pain and headaches. Furthermore, the ingestion of egg, chicken and beans was consistently followed by the development of purpuric spots varying from a few millimeters to several centimeters in diameter. These occurred on the arms and legs particularly, and developed within twelve hours after the causative foods were taken. These spots were preceded by a local soreness, and the patient could thereby predict the site of the ensuing purpura. This was at times associated with abdominal pain but also occurred without other associated lesions. The induction of symptoms—sore throat, headache, colic or purpura—could be brought on by exceedingly small amounts of the food implicated and have been produced by a single bean or the amount of egg in one tablespoonful of soup, a pot of which contained one egg. Avoidance of offending foods brought relief of symptoms.

CASE 4.—A boy, aged 14, first observed in 1928, had suffered from hay-fever for the two preceding summers. There was an indefinite family history of allergy but no history of associated allergic manifestations. Skin tests were positive only to pollens. During treatment he developed an attack of severe abdominal pain which was followed shortly by large purpuric spots on the back. A history revealed that, just preceding these symptoms, the boy had eaten a considerable quantity of red plums. After his recovery, he was given red plums to eat and within a few hours the sequence of acute abdominal pain followed by purpuric spots was produced.

CASE 5.—A woman, aged 50, first seen in 1926, complained of what was apparently an allergic coryza. There was no family history of allergy and no associated history other than severe hives earlier in life. Skin tests were negative. In view of recent experience indicating that allergic nasal symptoms are at times due to foods,[8] dietary manipulation was carried out. It was

8. Eyermann, C. H.: Food Allergy as Cause of Nasal Symptoms, J. A. M. A. **91**: 312 (Aug. 4) 1928.

thus found that wheat was responsible for the disturbance. After fairly large quantities of bread were given there followed not only violent attacks of paroxysmal sneezing but abdominal cramping, purpuric spots on the legs and swelling with painful motion of the right great toe. Further history then revealed that the patient frequently had abdominal pain from no apparent cause and had not considered this relevant while reciting the history of her nasal disorder. These symptoms of abdominal pain, purpura and paroxysmal sneezing were repeatedly induced by wheat and it is interesting that usually nasal symptoms alone occurred and occasionally diffuse abdominal pain and purpuric spots also.

CASE 6.—A woman, aged 52, seen first in 1928, complained of abdominal pain, blue spots and painful joints, particularly of the knees, hips and wrists; these were moderately swollen but not red. There was an indefinite family history of allergy and no history of associated allergic disturbances. The patient believed that her abdominal pain occurred after eating apples in any form. Skin tests were negative. It was found, however, that pork, onions and strawberries caused her symptoms. She remained well while avoiding these foods. After only a small portion of pork had been taken, severe abdominal pain occurred within three hours and purpura within twelve hours. These symptoms were also produced by onions and strawberries. No joint disturbances were thus produced.

SUMMARY

1. Six further cases of purpura with abdominal pain (Henoch's purpura) have been identified with allergy.

2. In each instance it was demonstrated that the lesions were caused by the ingestion of particular foodstuffs.

3. In two other patients, allergic manifestations and purpura coexisted but no particular foodstuff was incriminated.

RECURRENT MENINGITIS WITHIN A PERIOD OF EIGHT YEARS

REPORT OF AN UNUSUAL CASE

I. P. BRONSTEIN, M.D.

CHICAGO

A careful study of the literature since 1866 reveals comparatively few reports of recurrent meningitis, and none similar to the case presented here.

Weitzel [1] reports the case of an aviator who had recovered from an attack of cerebrospinal meningitis and, at a later date, after injury to the skull, suffered a fatal recurrence. The author makes mention of the well known fact that the persistence of germs in the natural cavities might, under the influence of an injury, be awakened and incite a new infection.

Zoeller [2] reports the case of a student marine who had his first attack of meningitis, Jan. 21, 1924, the second one three weeks later, and the third attack three months after the second. Only during the third attack were the meningococci definitely isolated from the spinal fluid.

Gordon [3] reports a series of ten cases of meningococcus meningitis, the longest duration of any one case being thirteen months.

Herrick [4] reports a series of seven cases of recurrent meningococcus meningitis within a period of from four to sixteen weeks following recovery from the first attack. The author states that two or three attacks of meningitis, within a few weeks or months of the primary attack, is the usual course of recurrent cases and is termed in the French literature the "classic course."

Williams [5] reports a case of intractable headache in a married woman, aged 55, who had an early history of arrested pulmonary tuberculosis, malaria and cerebrospinal fever. An operation was undertaken because of persistent pain over the occipital area and the presence of positive Kernig and Babinski signs. No tuberculomas were found, and, unfortunately, no culture was made of the spinal fluid at the time of the operation.

Warner [6] cites a case of chronic meningitis, probably syphilitic in origin, causing progressive dementia and imbecility.

Starr [7] speaks of syphilis as being a causative factor in chronic meningitis.

Thomson [8] describes a case of chronic meningitis of otitic origin, caused by a brain hernia produced during a mastoid operation, four years previously.

REPORT OF CASE

First Admission.—M. L., a man, aged 42, was admitted to the surgical service of the Presbyterian Hospital, Sept. 8, 1920, the original impression being that he had acute appendicitis. The symptoms were severe headache, pain in the abdomen, vomiting and stupor. Following catheterization, there was complete relief from abdominal distress caused by a distended bladder.

The patient had had a nose and throat operation nine days previous to admission, and following this a discharge appeared from the right nostril. At the time of admission there was a positive Kernig sign; the Babinski and Brudzinski reflexes were negative. There was also some rigidity of the neck. Spinal puncture revealed a cloudy fluid under increased pressure. The cell count showed 20,000 cells, chiefly polymorphonuclear leukocytes. No organisms were found on direct smear or at any time during the first admission. The spinal fluid Wassermann reaction was negative. There was a positive Nonne reaction. The white blood count on admission was 61,000, and was repeated on two other occasions with a drop to 12,000 and then a rise to 12,800. The urine was normal.

Repeated spinal punctures were done, and antimeningococcic serum was given intraspinally. The patient was discharged as cured, October 17, with a final diagnosis of suppurative cerebrospinal meningitis of an unknown etiology.

Second Admission.—The patient was readmitted, Feb. 4, 1921. When discharged, Oct. 17, 1920, he had apparently been cured of an acute suppurative meningitis. At that time he had been given antimeningococcic serum, but no organisms were found. Since then he had been in fairly good health. A few days prior to the second admission, a nasal discharge ensued and then ceased, followed by severe headaches. On the morning of February 4, projectile vomiting occurred, without preceding nausea. The patient had had a premonition of an oncoming attack and was taken to the hospital at his own request. He was rational; he complained of severe headache but did not have facial spasm. The pupils were contracted, and reacted slowly to light, but were normal in movement. There were negative Babinski and Kernig reflexes, and the knee jerks were markedly increased. Spinal puncture revealed a turbid fluid under increased pressure, and a cell count of 9,300. Antimeningococcic serum was given.

Several days after the second admission, definite neck and back rigidity with opisthotonos appeared. On this admission a careful nasal examination was made. The frontal and maxillary sinuses were clear. There was a partial removal of the ethmoid labyrinth on the right side, and the anterior wall of the sphenoid sinus on this side was resected. Cultures from

1. Weitzel, L., and Martin, L.: Recurrence of Cerebrospinal Meningitis After Injury to Skull, Presse méd. **34**: 1211 (Sept. 25) 1926.
2. Zoeller, C.: Recurring Cerebrospinal Meningitis Beginning as Prolonged Aseptic Meningeal Reaction, Bull. et mém. Soc. méd. d. hôp. de Paris **49**: 1473-1478 (Nov. 20) 1925.
3. Gordon, Alfred: The Chronic Form of Meningococcus Meningitis, Arch. Int. Med. **23**: 150 (Feb.) 1919.
4. Herrick, W. W.: Recurring Meningococcic Meningitis: Report of Seven Cases, M. Clin. North America **3**: 379 (Sept.) 1919.
5. Williams, M. H.: Case of Chronic Meningitis Lasting Fifteen Years, Lancet **2**: 496-497 (Sept. 5) 1925.
6. Warner: A Case of Chronic Meningitis, Probably Syphilitic, and Causing Progressive Dementia, Brain **40**: 107-111, 1888-1889.
7. Starr: Chronic Meningitis in Nervous Diseases—Organic and Functional, pp. 402-403.
8. Thomson: Case of Chronic Meningitis Possibly of Otitic Origin, Ann. Otol. Rhin. & Laryngol. **23**, September, 1914.

the cribriform plate were made. Direct smear of the spinal fluid revealed gram-negative intracellular diplococci, and a few extracellular cocci.

Culture on agar streak did not reveal any growth in twenty-four hours. In forty-eight hours, gram-negative diplococci were present. Their absolute identity as meningococci was uncertain. Blood agar plates of the right ethmoid showed staphylococci in twenty-four hours, and diphtheroid and small streptococci in forty-eight hours. Blood agar plates of the left ethmoid showed staphylococci in twenty-four hours and no growth in forty-eight hours. Cultures of the nasopharynx showed staphylococci in twenty-four hours and no growth in forty-eight hours.

Conclusions drawn from the bacteriologic study were that staphylococci and streptococci were present, but no meningococci. The white blood count on the second admission was 29,300, with a drop first to 17,600 and then to 12,300. The red blood count was 5,570,000; hemoglobin was 88 per cent (Dare), and the urine was normal.

As during the first admission, repeated spinal punctures were done and antimeningococcic serum was given intraspinally. The patient was discharged, February 18, as improved, with a diagnosis of epidemic (?) cerebrospinal meningitis.

Third Admission.—The patient was again admitted, Aug. 1, 1921. He had been well until a few days before this admission, which was preceded by a week of nasal discharge, ceasing prior to his entrance for the third time. The symptoms were severe headache and projectile vomiting. The Kernig and Babinski reflexes were negative. A spinal puncture revealed cloudy fluid under increased pressure. There were 4,880 cells, chiefly polymorphonuclear leukocytes. Direct smear did not show any organisms, and blood agar plates had no growths in twenty-four and forty-eight hours. On the day after admission, rigidity of the neck developed, which was relieved by a spinal puncture, and antimeningococcic serum was given. The fluid on the second puncture showed 2,500 cells. Smears made of the nose and throat showed hemolytic streptococci; the blood count on this admission was 5,130,000, with a hemoglobin of 85 per cent; the white blood count was 21,900, and the urine was normal.

Several punctures were done and serum was given. The patient was discharged, September 11, as improved, with a diagnosis of recurrent meningitis.

Fourth Admission.—After a lapse of seven years, the patient was admitted, Dec. 16, 1928, to the Michael Reese Hospital. He had been seen at home, at which time a diagnosis of meningitis was made. The Brudzinski reflex was positive; the Kernig and Babinski reflexes on the left also were positive. The patient was semistuporous and moaning because of a severe headache. This attack was preceded by a mild influenza, lasting three days. No nasal discharge occurred previous to the onset of this attack. The neck was rigid; the pupils were small and equal, and reacted sluggishly to light; the back was slightly arched; the chest was normal and the abdomen was soft. Examination of the sinuses, ears and nasal cavities was negative with the ordinary tests. Spinal puncture revealed cloudy fluid under increased pressure. There were 814 cells and a positive globulin reaction. The smear of the spinal fluid showed chiefly polymorphonuclear leukocytes and a moderate number of intracellular diplococci. Antimeningococcic serum was given.

On the evening of the same day the patient was much improved and spoke rationally but still had marked rigidity. Another spinal puncture was done and serum given. Later, the patient grew restless and had involuntary passages of urine and feces. On the next day the breathing became labored; edema of the lungs developed, and a smear of the spinal fluid revealed occasional intracellular organisms. The patient died, December 18.

A bacteriologic study revealed hemolytic streptococci in pure culture. These organisms were not bile-soluble, and inulin was not fermented. The spinal fluid Wassermann reaction was negative. The sodium chloride content was 603 mg. per hundred cubic centimeters; the sugar reaction was negative. A typical meningitic curve was obtained in the spinal fluid.

The other observations were as follows: The blood pressure was 102 systolic and 68 diastolic; the urine was positive for albumin, but sugar and acetone were not present. Microscopic examination of the urine was negative. The red blood count was 5,660,000 and the white blood count 15,500, with a differential count showing 72 per cent neutrophils, 6 per cent small mononuclears and 22 per cent large mononuclears. Chemical analysis of the blood revealed a blood sugar of 158; urea nitrogen, 34; creatinine, 1.6, and nonprotein nitrogen, 66.

COMMENT

The case reported here was one of recurrent meningitis, within a space of eight years, the first three attacks occurring within a year, and the fourth after a lapse of seven years. It was only during the period of the second admission that organisms at all suggestive of meningococci were isolated.

Following the third admission, however, preceding which the patient had had a nasal discharge, the possibility of this discharge being spinal fluid was considered. Dr. Shambaugh and the late Dr. Sluder suggested that, at the time of the intranasal operation, injury might have occurred to the cribriform plate, bringing about a flow of spinal fluid through the nasal chambers. Careful examination of the nasal chambers did not reveal any pathologic condition. The fluid was watery, slightly opalescent, and of chylous appearance. The fluid gave a positive albumin and negative sugar reaction. According to Webster,[9] this rules out its being spinal fluid.

Flexner believed that recurrent attacks were due to the lighting up of protected, little accessible foci, in the meninges or ventricles, as a result of factors lowering the resistance. In the patient in question, a mild attack of grip, during an epidemic of influenza, might have lighted up a hidden focus in the meninges. In Weitzel's case the patient recovered completely from an attack of epidemic meningitis, only to succumb at a later date to a second, after injury to the skull.

Postmortem studies on individuals dying from chronic meningitis reveal exudates in the subarachnoid spaces, containing the meningococci. Pus containing meningococci may be found in the accessory sinuses of the nose.

Unfortunately, an autopsy was not obtained in this case, and therefore many questions must remain unanswered.

CONCLUSION

In an unusual case of recurrent meningitis, here recorded, the original attack was associated with a nasal operation. The recurrent attacks took place four and six months later, the final attack after a lapse of seven years. The association with a nasal discharge was noted on the second and third attacks, whereas in the fourth attack the nasal discharge was absent but influenza was present. The causative organisms varied, but at no time was the identity of meningococci definitely established.

9 South Kedzie Avenue.

9. Webster: Diagnostic Methods, Philadelphia, P. Blakiston's Son & Co., p. 46.

Rheumatic Manifestations and Cardiac Disease.—The group of rheumatic manifestations consists of (1) recurring tonsillitis and pharyngitis; (2) acute rheumatic fever; (3) myositis, muscle, bone and joint pains (growing pains); and (4) chorea. It might be thought advisable to include under a fifth heading scarlet fever, pneumonia, diphtheria and other infectious diseases. But it is not generally believed that these play a prominent rôle in the etiology of cardiac conditions. Individuals having one or more of the affections mentioned in the above group should be considered and treated as potential cases of endocarditis. If neglected, a certain per cent of them are destined to become cardiac cases sooner or later.—Pounders, C. M.: *J. Oklahoma M. A.*, May, 1929.

ETHYLENE

ITS COMPARATIVE SAFETY

MOSES SALZER, M.D.
CINCINNATI

Following the explosion in Evansville, supposedly due to ethylene, which has been fully explained in THE JOURNAL,[1] a wave of hysteria against the use of this valuable anesthetic spread through this section of the country. To counteract such a state of affairs, I undertook the investigation reported here, subsequently followed by a questionnaire sent out by the Jewish Hospital of Cincinnati, which more than substantiated all the statements that I had made on a purely theoretical basis.

There is no need to repeat what happened in Evansville, Ind., except to say that such an accident is absolutely impossible with modern equipment. In fact, one could not mix the different gases in the tanks if one wished to do so.

Ethylene is a gas somewhat lighter than air, and, according to Bulletin 15 of the U. S. Bureau of Mines, will explode if mixed with air in certain proportions. The lower limit is 4 per cent and the upper limit 22 per cent. The lower limit of explosibility of ether and air is 2 per cent and the upper limit 50 per cent,[2] a far wider range than ethylene has. Any mixture richer or leaner than this will not explode. Those who drive automobiles will readily appreciate what this means, as it is well known from experience that too lean a mixture will not explode, nor will a mixture too rich in gasoline vapor. Furthermore, no explosion of any consequence can occur unless the volume of the explosive mixture is relatively large. It is perfectly apparent for instance that, if a tissue paper bag or a toy balloon were filled with an explosive mixture and then ignited, no damage would result outside of the destruction of the bag or the balloon. This is exactly what may happen when the lungs are filled with such an explosive mixture. The lungs may be shattered and the patient killed, but, because of the small quantity of gas involved and the lack of compression, no bystander could be injured nor could any considerable amount of operating room equipment be destroyed.

No explosion can possibly occur in the ethylene tanks themselves or in the tubing leading to the anesthetic machine, as only pure ethylene is present in this part of the apparatus. If a flame or spark were brought to a possible leak of this part of the apparatus, the gas would ignite but would not explode. After ethylene reaches the anesthetic machine any mixture of air, oxygen, ethylene and ether is possible. This mixture may be explosive or not; if it should be explosive and should become ignited, considerable injury, such as a ruptured lung or a severe burn, might be done to the patient; but it is almost impossible to conceive of any appreciable injury to the surgeon, anesthetist or any bystander, as the amount of gas that can be exploded is not under pressure and is less than one-eighth cubic foot in every machine on the market. This also includes the mixture in the immediate vicinity of the mask. When ethylene explodes it blows itself out, while when ether explodes it may throw liquid fire all over the operating room.

Not more than 12 cubic feet of ethylene is used in an hour's anesthesia, and if all of this should be present in an operating room at one time and evenly distributed, as very quickly takes place, no explosion could occur because the average operating room contains not less than 4,000 cubic feet, which would make the proportion of ethylene in a room 0.3 per cent or less, which is below the explosive limit. In other words, the mixture would be too lean. In a full F size tank, containing 140 cubic feet, were to let go suddenly in the average sized operating room, the resulting mixture would not be more than 3 or 3.5 per cent, which is still below the lower limit of explosibility, as given by the U. S. Bureau of Mines, and still too lean to explode.

As a result of this purely theoretical consideration, I predicted that (1) it would be possible for a patient's lungs to be exploded; (2) any explosion or flashes, outside of this, would be of a minor character, and (3) ethylene was no more hazardous than ether.

The foregoing statements were more than justified by the results of the following questionnaire, which was sent out by the Jewish Hospital of Cincinnati:

1. Does your hospital use ethylene for anesthesia?
2. (*a*) If so, how long have you been using it?
   (*b*) Approximately how many ethylene anesthesias have been given?
3. (*a*) Have you had any explosions?
   (*b*) With what results, deaths, injuries, destruction of equipment?
4. If you did permit its use at one time and do not use it at present, why was it discontinued?

This questionnaire was sent to 478 hospitals in the United States, except those in Cincinnati, with a bed capacity of 200 or more; 132 hospitals replied that they used ethylene and 166 that they did not. Ninety-nine gave definite figures as to the number of ethylene anesthesias given. These made a total of 332,721. The hospitals that did not give concrete figures answered in such terms as many thousands, hundreds, or 90 per cent. Judging from the size of the latter hospitals and the amount of surgical work that they are known to be doing, it is safe to say that they have given proportionately as many anesthesias as those giving concrete figures. This would mean that at least 425,000 ethylene anesthesias form the basis of my conclusions.

Only ten explosions were reported, one in about 42,000, or a record which ether cannot begin to approach. In my own experience of less than 20,000 anesthesias, most of them nitrous oxide and ethylene, I have had three ether flares or explosions, none, however, due to ethylene.

As a result of the ethylene explosions reported in the questionnaire (some of these "explosions" were mere flashes), there were three minor injuries, four destructions of equipment and one death—the famous case that occurred in the Union Memorial Hospital of Baltimore in which the patient's lungs were exploded. The whole country was combed to find a single case of an explosion of the lungs due to ethylene, which I can match with two cases,[3] in Cincinnati alone, where the same accident happened when ether alone was being used.

That the accidents, with this one exception, were minor is evidenced by the fact that, in all except three of the hospitals where these occurred, ethylene is still being used and even the Union Memorial Hospital of Baltimore is still using ethylene.

1. An Anesthetic Accident, editorial, J. A. M. A. **92**: 476 (Feb. 9) 1929.
2. Personal communication to the author from the Mallinckroft Chemical Works.
3. Personal communications to the author from Dr. Henry B. Freiberg and Dr. Julian A. Benjamin of Cincinnati.

CONCLUSIONS

1. The quantity of ethylene capable of explosion at any one time is too small to produce any considerable damage.

2. A nation wide survey of more than 425,000 ethylene anesthesias shows a remarkably favorable record.

3. Ethylene according to this survey is probably as safe as ether, if not safer.

76 Groton Building.

Clinical Notes, Suggestions and New Instruments

LOBAR PNEUMONIA COMPLICATED BY FATAL BLEEDING GASTRIC EROSIONS

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Gastric erosions complicating lobar pneumonia are uncommon, while gastric erosions resulting in severe fatal hemorrhages are rare. Abt's Pediatrics, Nelson's Loose Leaf Living Medicine, and Holt and Howland's, Griffith and Mitchell's, Finkelstein's and Feer's textbooks on pediatrics do not even mention this condition as a possible complication of lobar pneumonia. Tice[1] writes as follows in regard to complications of lobar pneumonia: "Pneumococcus gastritis, gastric and duodenal ulceration rarely occur. Intestinal hemorrhages as a result of ulcerative lesions in the bowel have been described." Osler[2] writes:

"Dieulafoy has described under the name of ulcerative and hemorrhagic pneumococcic gastritis a condition which may be productive of even fatal hemorrhage. It is accompanied by nausea, vomiting and pain and may terminate in peritonitis. Dieulafoy suggests that in the event of the patient's recovery such erosions may develop into the so-called peptic ulcers. Fraenkel has also met with this condition."

The writer, however, failed to give any references to these statements. A thorough search through the volumes of the *Index Medicus* and the *Quarterly Cumulative Index Medicus* resulted in the finding of several reports of cases similar to our case. Dieulafoy[3] reported three fatal cases of pneumonia, all in adults and all complicated by hematemesis and bloody diarrheal stools. The autopsy in the first case revealed pneumonia on the right side with pericarditis and peritonitis. The pneumococcus was isolated from these lesions. The mucous membrane of the stomach presented numerous small erosions, especially near the pylorus. Sections showed many diplococci in the interglandular connective tissue and within the capillaries. The autopsy in the second case showed pneumonia on the left side, purulent meningitis, peritonitis and arthritis. The pneumococcus was demonstrated in these lesions. The mucous membrane of the stomach showed many hemorrhagic erosions. Sections failed to show the diplococcus. The third case showed a pneumonia with numerous ecchymoses and two ulcerations of the mucous membrane of the stomach. No diplococci were found in these lesions. Münter[4] reported a similar case in an adult in which the autopsy also showed a caseo-ulcerous tuberculosis of both upper lobes and peritonitis, and the mucous membrane of the stomach revealed many erosions which showed the diplococcus of Fränkel. Friedrich[5] reported another case in an adult, with the autopsy showing a pneumonia and many gastric erosions. No diplococci were found in these erosions.

REPORT OF CASE

A. Z., a white girl, aged 8 years, entered the children's department of the Cook County Hospital, May 17, 1926, at 9:30 p. m., because of pain in the abdomen over a period of four days, vomiting of blood, and bloody stools of one day's duration.

The history given by the patient's mother was as follows: The patient had been apparently well until six days before, when she was awakened from her sleep and started vomiting. The vomitus then consisted of the food eaten. The next day the child remained in bed and her skin felt hot. She was very restless all that night and was continually asking for water. On the next day, May 15, the child complained of pain in the abdomen. A physician was then called and he ordered ice packs to the abdomen and gave some medicine. The child kept getting worse. May 16, the condition remained about the same but marked paleness of the skin was noted by the mother. This paleness had been becoming more and more marked. Fever of 105 F. developed, May 16. Pain in the abdomen continued, the patient always pointing to the region above the umbilicus. Vomiting of bloody material occurred twice on the day of entrance, and tarry black stools appeared for the first time just before entrance. Stools had been passed once daily for the past five days but no blood was noticed until the day of examination. There had not been any cough, chills, dysuria or hematuria.

The past and family histories did not reveal anything unusual. The father, mother and five children were living and well. The only disease the patient had had was chickenpox one year previously.

At examination the patient was extremely pale and restless, but appeared well developed and well nourished. The temperature was 102.4 rectally; the pulse rate was 180, regular and weak; respiration was 56. The essential observations were extreme paleness of the skin and mucous membranes. The lungs showed a definite dulness in the region of the left lower lobe with bronchial breathing and many crepitant râles in the same area. The borders of the heart were within normal limits. No murmurs or thrills could be heard or felt. The abdominal muscles were not rigid and not definitely tender. The liver, spleen and kidneys were not palpable. Peristalsis was somewhat diminished. The rectal examination did not reveal any palpable masses, but a discharge of tarry blood was noted when the finger was removed. The skin did not show purpuric spots anywhere.

Laboratory examination showed red blood cells, 1,900,000 per cubic millimeter; hemoglobin (Tallqvist), 20 per cent, and white blood cells, 30,000 per cubic millimeter. The differential count showed 80 per cent polymorphonuclear leukocytes, 18 per cent lymphocytes, 1 per cent eosinophils and 1 per cent monocytes. The bleeding time was three minutes. The blood clot showed normal retractility.

Our diagnosis at the time of the patient's admission was a left lower lobe pneumonia and a melena probably due to a hemorrhage from the upper gastro-intestinal tract, possibly from a peptic ulcer. On the basis of the history and the physical and laboratory observations we felt sure that we could exclude typhoid, leukemias, Banti's disease, tuberculosis, enteritis and the purpuras, and because of the tarry stools we committed ourselves on the diagnosis of bleeding peptic ulcer.

The patient's blood typed with the father's showed coagulation of the donor's red blood cells. One-sixteenth grain (4 mg.) of morphine sulphate was given hypodermically followed by a 10 cc. intramuscular injection of thromboplastin. Father's whole blood was given intramuscularly at two hourly intervals until a total of 210 cc. had been given. The patient was also given 800 cc. of physiologic solution of sodium chloride. Her condition, however, became more critical, and she died fifteen hours after entrance.

The autopsy, performed by Dr. C. C. Guy, revealed a lobar pneumonia of the left pulmonary lobe; several hemorrhagic gastric erosions; a blood-filled gastro-intestinal tract; slight bilateral pulmonary edema; cloudy swelling of the parenchymatous organs, and marked hyperplasia of the trachea and bronchial lymph glands.

The blood culture showed a gram-positive diplococcus, *Diplococcus pneumoniae*.

Microscopically, lobar pneumonia and acute erosions of the stomach were observed.

1. Tice, Frederick: Practice of Medicine, Hagerstown, Md., W. F. Prior Company, Inc. **3**: 49.
2. Osler, William: Modern Medicine, Philadelphia, Lea & Febiger **2**: 606, 1907.
3. Dieulafoy: Gastrite ulcéreuse—Pneumococci, grandes hématémésis, Clinique médicule de l'Hotel-Dieu de Paris **3**: 219, 1898-1899.
4. Münter: Über Pneumococcenaffektion des Magens, Deutsche med. Wchnschr., July 30, 1908, p. 1347.
5. Friedrich: Verlebutung in den Magen bei Dungenentzündung, Berl. klin. Wchnschr., September, 1920, p. 898.

CONCLUSIONS

1. Acute bleeding gastric erosions resulting fatally may complicate a case of lobar pneumonia.

2. A review of the literature reveals that this is a rare complication.

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VESICAL INFECTION WITH TRICHOMONAS VAGINALIS *

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Trichomonas vaginalis is a protozoan belonging to the group of flagellates which was long considered nonpathogenic. Recently several gynecologists, notably Davis [1] of Milwaukee and De Lee [2] of Chicago, have reported many cases of irritating vaginitis due to it, and considerable doubt has been raised concerning its harmlessness.

Marchand [3] was the first to report a case of infection of the bladder with this organism. Miura,[4] Davis,[5] Dock,[6] Baatz,[7] Arnold,[8] Kunstler,[9] Escomel,[10] Čapek,[11] Dastidar,[12] Rasmussen,[13] and Lewis and Carroll [14] have since reported similar cases. Most of these observers report single cases, so that this condition is certainly not common. In some cases the infection caused an irritating urethritis in the male, and in one case, described at length by Lewis and Carroll,[14] it caused a severe acute pyelitis. The case reported here resembles closely the one described by them.

REPORT OF CASE

Mrs. G. F. G., a woman, aged 32, married, childless, entered the hospital, March 16, 1928, with the complaint of frequent painful urination, pain in the region of the right kidney, chills, and high fever and prostration. She said that her previous health had been fairly good aside from an irritating vaginal discharge and dysmenorrhea, both of which had been present for many years.

The acute symptoms began about two weeks before admission to the hospital and consisted of frequency of urination with some bladder pain afterward. These symptoms became gradually worse, and she noticed that the urine was cloudy and sometimes bloody. After about a week she began to have fever and chills, and pain in the region of the right kidney with ureteral colic. Hexylresorcinol was prescribed by another physician without relief, and the patient was admitted to the hospital with a temperature of 104.6 F., a pulse rate of 132, and respirations 28. Examination disclosed extreme tenderness over the right kidney, and routine urinalysis by the technician showed numerous pus cells, a large amount of albumin and numerous granular casts. The white blood count was 7,200, with 74 per cent neutrophils, 5 per cent large mononuclears and 31 per cent small mononuclears; the hemoglobin was 87 per cent and the red blood count 4,410,000. The Wassermann and Kahn tests were negative.

A diagnosis of acute pyelitis was made and pelvic lavage was decided on, as a complete cystoscopic study was deemed inadvisable on account of the patient's critical condition. The bladder was normal except for moderate injection about the neck and the right ureteral orifice. A number 5 catheter was passed with some difficulty to the right kidney, and urine dropped from it intermittently. This urine contained many pus cells free and in clumps. No motile trichomonads were seen, and unfortunately it was not determined whether or not there were any nonmotile flagellates. The ureteral catheter was left in place and the kidney lavaged with 0.5 per cent mercurochrome-220 soluble twice daily for the next two days, after which the catheter was removed.

The patient had no more chills; her fever subsided, and she improved rapidly in every way except that the symptoms of cystitis continued. Nine days after admission to the hospital a complete cystoscopic examination was made, at which time there was some inflammation about the bladder neck but no redness about the ureteral orifices. Catheters were passed to both kidneys without difficulty; a differential phenolsulphonphthalein test was performed and a right pyelogram was made. The urine from each kidney was free from pus, bacteria and flagellates. The right kidney excreted 12 per cent in thirty minutes and the left kidney excreted 22 per cent in the same time. The pyelogram was considered negative by our radiologist, Dr. K. T. Meyer.

The bladder urine obtained through the cystoscope showed no albumin or casts, only a few pus cells and very numerous freely motile flagellates which were diagnosed as *Trichomonas vaginalis*. This diagnosis was confirmed by Dr. C. L. Seitz, our clinical pathologist. Moist preparations were obtained from the cervix, and many similar organisms were found in the vaginal secretion. The cervix was injected, and there were numerous small excoriations about it.

Bladder irrigations with boric acid solution followed by instillation of one-half ounce (15 cc.) of mercurochrome solution were given every day for a few days, resulting in prompt improvement in the bladder symptoms and decrease in the number of flagellates in the urine. The first few days some of the organisms were motile, but later only nonmotile organisms were found, and no pus cells were seen. The cervix and vagina were also treated with 6 per cent mercurochrome solution, and the discharge decreased rapidly but continued to a lesser extent for some months. Treatments to the bladder and cervix were kept up for some weeks, at three to seven day intervals.

The right kidney remained somewhat tender for a month, but the patient's health rapidly improved and she gained weight and strength. There was a recurrence of the cystitis about four months after she left the hospital, at which time trichomonads were again found in the bladder urine. The condition gradually improved under treatments, and she returned at my request eleven months after admission to the hospital, at which time she was free from kidney and bladder symptoms, and a catheterized specimen of the urine did not contain pus or flagellates, although she had not had any treatments for four months. The cervix appeared normal, but a hanging drop preparation showed a few motile trichomonads. She stated that if she did not take a salt and sodium bicarbonate douche, twice a week, she had a vaginal discharge which caused vulvar pruritus. This symptom was now less annoying than it had been for several years, and her general health was better than it had ever been. She was urged to take further treatments for the vaginal trichomoniasis, but she did not do so because of the mildness of the present symptoms.

COMMENT

Trichomonas vaginalis (Donné) varies in size, but usually is about as large as a pus cell. The typical motile organism is oval or spindle shaped, and has four long flagella springing from its anterior pole, a short tail-like process extending from its posterior pole, and an undulating membrane on one side, extending between the two poles. It moves quite rapidly, spinning like a top on its transverse axis, propulsion being by

* From the Welborn Hospital Clinic.

1. Davis, C. H., and Colwell, Charlotte: Trichomonas Vaginalis Donné, J. A. M. A. **92:** 306-308 (Jan. 26) 1929.
2. De Lee, J. B.: Trichomonas Vaginalis Vaginitis, Illinois M. J. **37:** 186 (March) 1920.
3. Marchand, F.: Über das Vorkommen von Trichomonas im Harne eines Mannes, nebst Bemerkungen über Tr. vaginalis, Centralbl. f. Bakt. **15:** 709, 1894.
4. Miura, K.: Trichomonas vaginalis in frisch gelassenen Urin eines Mannes (Japanese text), Ztschr. d. med. Gesellsch. zu Tokyo **8:** 19-25, 1894.
5. Davis, N.: Trichomonas Vaginalis, Chicago M. Rec. **10-11:** 238, 1896.
6. Dock, G.: Trichomonas as a Parasite of Man, Am. J. M. Sc. **111:** 4, 1896.
7. Baatz, P.: Trichomonas vaginalis in der weiblichen Harnblase, Monatsh. f. Urol. **7:** 457, 1902.
8. Arnold, M.: Trichomonas vaginalis Donné als Parasit in der Harnblase einer Gravida, Ztschr. f. gynäk. Urol. **4:** 215, 1914.
9. Kunstler: Analyses microscopiques des urines d'un malade atteint de pyélite consécutive à une opération de taille, J. de méd. de Bordeaux **13:** 249, 1883.
10. Escomel, E.: Trichomonas Infection of the Bladder, Crón. méd. **43:** 185-208 (July) 1926.
11. Čapek, A.: Flagellate Urethritis in the Male, M. Klin. **23:** 1535 (Oct. 7) 1927.
12. Dastidar, S.: Trichomonas Infection in the Urine, Indian M. Gaz. **60:** 160, 1925.
13. Rasmussen, A. A.: Om Trichomonas vaginalis i Blaeren hos Gravide, Hospitalstid. **69:** 117, 1926.
14. Lewis, B., and Carroll, G.: A Case of Trichomonas Vaginalis, J. Urol. **19:** 337 (March) 1928.

means of the whiplike action of the flagella and the undulation of the membrane. Many nonmotile trichomonads are also seen, some of which are spherical and hard to distinguish from pus cells, while others are very irregular in shape, sometimes resembling amebas, with pseudopodia. The flagella and undulating membrane can seldom be seen in fresh preparations unless the organism is motile. The organisms can be differentiated from pus cells by the addition of acetic acid, which demonstrates the polymorphonuclear character of the latter.

The case reported here was presented because of the pronounced infestation of the bladder with trichomonads and the probable extension of this infection to the kidney. The therapeutic response to pelvic and vesical lavage with mercurochrome was certainly striking.

AGRANULOCYTOSIS WITH RECOVERY

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Agranulocytosis is still uncommon enough to excite interest, in spite of the fact that more than fifty cases have been reported since Shultz described the syndrome in 1922. The disease usually begins abruptly with sore throat, fever, chilly sensations, aches and prostration. The physical abnormalities are typically (1) a bleeding ulceration of the mouth with a membrane often simulating that of diphtheria; (2) enlargement of the liver and spleen; (3) occasional swelling of the inguinal lymph glands, and (4) ecchymosis and herpes. The blood count shows a marked leukopenia, often less than 1,000 white cells being present. The polymorphonuclear series is chiefly affected, the proportion of these cells often falling to 1 or 2 per cent. Since more than 90 per cent of the reported cases have proved fatal, it is thought worth while to record one in which recovery took place.

REPORT OF CASE

History.—A man, aged about 60, had been suffering with a progressive sore throat for more than a week, the chief complaints being general weakness and pain on swallowing.

Examination.—The mucous membrane of the throat was red and swollen. The tonsils were also red and enlarged. There was no slough or ulceration; the cervical glands were tender and enlarged. Temperature readings averaged 101 F.; the pulse and respiration were only slightly altered. No enlargement of the liver or spleen was noted. Examination was essentially negative in other respects.

Progress.—For two months the patient showed a gradual progress toward recovery. The inflammation of the tonsils and pharynx slowly subsided under aspiration and topical treatment. The neck, however, began to swell more, and became red and indurated. After two weeks the indurations on both sides of the neck were quite extensive and hard. Fluctuation developed and was incised and drained, yielding yellow staphylococcic pus. Fifty cubic centimeter doses of a leukocytic extract were given daily until improvement in the blood count was noted. After his recovery, the patient was found to have also a carcinoma of the rectum.

Laboratory Examination.—The urine was clear, amber and acid, and showed a specific gravity of 1.020, a moderate trace of albumin and a faint trace of bile; no sugar or acetone, nor pus or blood were present, but many hyaline and granular casts were observed. When the patient was first seen the blood count was as follows: white blood cells, 1,000; hemoglobin, 75 per cent; lymphocytes, 96 per cent; polymorphonuclear leukocytes, 4 per cent. The next day the blood count was: red blood cells, 4,560,000; hemoglobin, 75 per cent; white blood cells, 1,200; lymphocytes, 34 per cent; transitionals, 13 per cent; polymorphonuclears, 50 per cent. Two days later the red blood cells numbered 4,000,000, with 70 per cent hemoglobin; the white blood cells, 3,400; lymphocytes, 30 per cent; transitionals, 2 per cent, and polymorphonuclears, 65 per cent. Two days later the red blood cell count was 4,240,000; hemoglobin, 80 per cent; white blood cells, 6,200; lymphocytes, 19 per cent; transitionals, 4 per cent, and polymorphonuclears, 77 per cent. Blood cultures were sterile. Cultures of pus showed staphylococci.

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Special Article

THE STATUS OF INTRAVENOUS THERAPY

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(Continued from volume 91, p. 1375)

VI. THE INTRAVENOUS USE OF GLANDULAR PRODUCTS

A careful consideration of the actual indications for the intravenous use of drugs and of the nature of glandular products and of their action in the body would seem to indicate that their injection directly into the vein is seldom, if ever, necessary or justifiable.

The subcutaneous administration of drugs has been used in practice for many years. Relatively speaking, it is a familiar field. Drugs so administered are, as a rule, more rapidly absorbed and exert a more rapid and powerful effect than when given by mouth. But their hypodermic use has necessitated a nice adjustment in relation to refinement of the drugs and the dose to be employed. Even so, one frequently sees evidence of the overaction of drugs when so administered. With intravenous use, the body is instantaneously and irrevocably exposed to the sudden action of the drug, and calamitous results cannot be avoided at times except by the most careful precautions and by the best of judgment. Even with pure chemical entities, with which purity and standardization can be assured, intravenous treatment is hazardous enough; but with the conglomerate mixtures of organic extracts isolated from glands and labeled active principles, intravenous administration is often little short of criminal.

During the last two decades remarkable progress has been made both in therapy by the use of preparations of animal organs and in intravenous therapy. But both fields have been and are being exploited in a shameful manner.

Glandular products are specific in effect, and if potent are capable of harmful as well as of beneficial results. The active principles are unquestionably definite chemical entities; but these have been actually isolated and identified in only one or two instances. The preparations can be standardized, however, and even if impure may be used to great advantage provided they are properly administered. Even as impure mixtures, they can be used scientifically and effectively; but in such forms they should not be employed intravenously.

Normally, the glands of internal secretion supply their products to the body as they are needed. This is accomplished unobtrusively and without demonstrable disturbance physiologically. Obviously, it would be ideal to supply these products to the body in the same way that nature supplies them. For the present, at least, this is impossible; and we are forced

to resort to the crude but safer process of using a hypodermic needle, or, in the case of thyroid, of administration by mouth.

The idea of substitution, or replacement, therapy originated with Brown-Séquard in 1869. In 1891 Murray used thyroid feeding in the treatment of myxedema and cretinism. This proved extremely satisfactory, but unfortunately thyroid therapy is the only form of substitution or replacement therapy that has proved entirely satisfactory when glandular products are administered by mouth. With all other animal organ preparations, hypodermic administration is more satisfactory or is necessary.

THYROID PRODUCTS

The intravenous use of thyroid preparations is advocated at times, but it is entirely unnecessary except under most extraordinary circumstances. Oral administration of thyroid preparations is satisfactory. In the beginning, moist thyroid glands were used but, as time passed, desiccated thyroid (thyroideum, U. S. P. X) came into general use. This consists of "cleaned, dried and powdered thyroid gland, previously deprived of connective tissue and fat. It is obtained from domesticated animals which are used for food by man. Thyroid contains not less than 0.17 and not more than 0.23 per cent of iodine in thyroid combination, and must be free from iodine in inorganic or any other form of combination than that peculiar to the thyroid gland. One part corresponds to approximately 5 parts of the fresh glands." This preparation administered orally in appropriate doses to patients with myxedema and cretinism has proved entirely satisfactory in the management of hypothyroidism.

The active principle of the thyroid gland, first isolated by Kendall and designated by him thyroxin, has certain advantages in that it may be administered intravenously. These advantages, however, relate solely to accuracy of dosage and to the quantitative measurement of results and do not extend to the degree or rapidity of clinical improvement. Thus it has been established that 1 mg. of thyroxin administered intravenously increases the basal metabolism 2.8 per cent. In practice, however, desiccated thyroid is generally administered orally as a routine in lieu of thyroxin.

PITUITARY EXTRACT

Extract of the posterior lobe of the pituitary gland has been used chiefly in obstetrics during parturition, in diabetes insipidus, in conditions of shock and in paralytic ileus. Its chief action is in the stimulation of smooth muscle. It is employed hypodermically, since, if administered orally, it is inert. It is extremely potent and produces, even in therapeutic doses, immediate and marked changes. The patient becomes pale on account of generalized vasoconstriction and often complains of a feeling of weakness. In diabetes insipidus, it is used hypodermically with varying degrees of success and also intranasally by insufflation from an atomizer, by a medicine dropper or applied on pledgets of absorbent cotton. In an experience involving approximately sixty cases and extending over a period of five years, not a single instance has been encountered in which intravenous administration seemed indicated.

Within the last year, Kamm and Aldrich and their associates of the Parke-Davis research laboratories have succeeded in effecting almost complete separation of two active principles from the extract of the posterior lobe of the hypophysis; one of these exhibits oxytocic and the other pressor, diuretic and antidiuretic properties. The first preparation is now being tried out with much success in obstetric practice and is apparently just as effective as the posterior lobe itself. The second preparation is being used in the treatment of diabetes insipidus, in which its active antidiuretic effects are just as striking as those of solution of pituitary. The general reaction following its use is also somewhat less than that for the extract of the posterior lobe, so that patients who discontinued treatment with solution of pituitary because of constitutional upsets are taking the pressor principle without complaint. An occasion for its intravenous use has not been encountered.

INSULIN

The active principle insulin, isolated by Banting and his associates from the islets of Langerhans, has proved a tremendous success in the treatment of diabetes mellitus. Its chief use is confined to treatment of moderately severe and severe diabetes mellitus and cases complicated by acidosis or infection and to diabetes in children. It is also of value in certain disturbances of metabolism associated with anemia and emaciation, and in postoperative shock, in which it is sometimes administered simultaneously with dextrose. Insulin has now been in general use for a period of approximately five years, so that its place in medicine can be fairly evaluated. It constitutes one of the greatest gifts of all time to medicine.

Insulin is used hypodermically; it is inert when administered by mouth. In the Mayo Clinic, during five years, about 3,000 cases of diabetes have been treated. In only two instances was the intravenous use of insulin indicated, and in neither case did it appear more effective than when used hypodermically. One of these patients was resistant to insulin, so that as much as 1,000 units a day became necessary. Intravenous administration did not offer any advantages. The patient suffered from hemochromatosis and eventually died. Since the effect of insulin hypodermically administered is very prompt, its employment intravenously is not indicated. Further discussion may be found in the previous report [1] in this series.

PARATHYROID PRODUCTS

The active principle of the parathyroid gland was first extracted in crude form from the parathyroid glands of cattle by Hanson and later in purer form by Collip. It is effective in controlling the metabolism of calcium and the level of the latter in the blood, and hence it is specifically indicated in the treatment of tetania parathyreopriva. It is standardized according to its blood calcium raising properties in dogs. Like so many glandular products, it is inert when given by mouth and hence is used hypodermically. Administered subcutaneously, the preparation gives prompt effects which last over a few hours. There is no advantage in using it intravenously. In many instances of chronic tetany it does not wholly suffice, and the simultaneous administration of calcium by mouth is necessary. Small doses of desiccated thyroid are also of value in many cases.

OVARIAN PRODUCTS

Nonstandardized ovarian products have been administered orally for years in ovarian diseases, without decisive clinical results. The commercial products

1. Hunt, Reid; McCann, W. S.; Rowntree, L. G.; Voegtlin, Carl; and Eggleston, Cary: The Status of Intravenous Therapy: III. Intravenous Insulin Therapy, J. A. M. A. **88**: 1801 (June 4) 1927.

available include desiccated preparations and extracts of the whole ovary, of the corpus luteum and of the ovarian residue. The theoretical basis for the use of these products is not clear, and the clinical results have not been striking. Recently, great interest has centered on the work of Allen and Doisy. These investigators have demonstrated the presence of a potent principle in the liquor folliculi which, in the experimental animal, exerts a profound effect on estrus. The work must still be regarded as in the experimental stage, and conclusive clinical results are not yet available.

Ovarian products have been used mostly in functional amenorrhea, in combating the vasomotor symptoms of the menopause, in functional hemorrhage of the menopause, and in dysmenorrhea and genital hypoplasia, sterility, obesity of hypogenital origin, and the vomiting of pregnancy. Although the results have been widely discussed, much uncertainty still exists concerning the value of the treatment.

SUPRARENAL PRODUCTS

Deficiency of the suprarenal glands has been recognized clinically since Addison's classic description in 1855 of the disease which bears his name. An active principle, epinephrine, has been isolated from the medulla of the gland; but little has been accomplished in connection with the suprarenal cortex, which is the part of the gland most essential to life.

The pharmacologic properties of epinephrine have brought it into general use. Primarily, it is a stimulant to the myoneural juncture of the sympathetic autonomic nervous system, and it also exerts certain metabolic effects. It is used clinically to produce local vasoconstriction, in the control of hemorrhage, and to intensify and prolong the anesthetic effects of local anesthetics. It is of great value in the treatment of bronchial asthma, in which it frequently cuts short the attack through the dilating effect on the bronchioles. For these purposes it is used hypodermically; when applied locally on mucous membranes, it may be effective against hemorrhage.

Substitution or replacement therapy has been tried over a period of years in Addison's disease without any great effect. Recently it has been employed in a more intensive treatment known as the Muirhead regimen, with some clinical results of value. In this treatment epinephrine is administered to the point of tolerance hypodermically and by rectum, and the cortex is administered by mouth. It is believed by some that the procedure is effective in overcoming manifestations of suprarenal deficiency in a fair proportion of cases; but obviously such therapy does not have any effect on the active tuberculous processes which so commonly are responsible for Addison's disease. The tolerance of the patient for epinephrine may be slight; hence continuous treatment may be dangerous and contraindicated.

The intravenous use of epinephrine has been employed at times in cases of shock, in anesthetic accident, and in apparent sudden violent death. In these conditions its intravenous use is probably justifiable; but care should be exercised to avoid overdosage. Crile has suggested intracardiac injection when the patient is seen immediately following apparent sudden death, and recovery has been recorded in occasional instances.

SUMMARY

Only in case of surgical shock or sudden death is the intravenous use of epinephrine indicated. Thyroxin may be employed intravenously in experimental studies and in clinical investigations; but, for the present at least, it is neither indicated nor necessary for the effective management of myxedema or cretinism. In the present-day treatment of the diseases of the glands of internal secretion, one should pause and consider before using any other glandular products intravenously. This is especially important in view of the fact that the majority of these are relatively crude and usually quite complex extracts, most of them containing more or less protein, which, when injected intravenously, may produce severe constitutional reactions.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

LUMINAL-SODIUM (See New and Nonofficial Remedies, 1929, p. 81).

The following dosage form has been accepted:

Ampules Luminal-Sodium (Powder), 2 grains.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

PHARMACEUTIC PREPARATIONS OF EPHEDRA NOT ACCEPTABLE FOR N. N. R.

In recent years considerable attention has been given to the alkaloid ephedrine. The free base, ephedrine, and two salts, ephedrine hydrochloride and ephedrine sulphate, have been admitted to New and Nonofficial Remedies.

The alkaloid ephedrine is one of the alkaloids contained in the drug ephedra (*Ephedra equisetina*, ma huang), which contains also an indefinite and variable mixture of bases related to ephedrine but differing quantitatively and possibly qualitatively in their actions. A chemical assay of pharmaceutic preparations of ephedra has, therefore, no value as a measure of their therapeutic potency, having no bearing on therapeutic activity. The use of unstandardized preparations of a potent drug appears to be a step backward, and is distinctly undesirable when standardized preparations (in this case the isolated ephedrine and its salts) are practically available. In a sense this objection applies more or less to many of the older drugs, such as belladonna; but there is this important difference, that with belladonna the therapeutic experience was acquired from the use of the plant, so that considerable information as to the side-actions and dosage of the galenic preparations was available before the isolated principles were introduced, and as a result of this experience it appeared to some that there were desirable differences between the actions of the galenic preparations and those of the isolated principles. The present instance is entirely different; the whole scientific experience relates to ephedrine and its salts, and there is no reason whatever for believing that the effects of the galenic preparations containing the indefinite mixture of active principles would be more desirable than the known effects of the pure principle. The only excuse for this backward step appears to be that of expense; and it seems very questionable whether this is a sufficient excuse in the case of a rather powerful drug. In any event, it should not be taken until the clinical effects and dosage have been thoroughly tested.

The Council therefore decided that pharmaceutic preparations of ephedra must be considered unacceptable until their therapeutic value in comparison to ephedrine has been established.

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SATURDAY, JUNE 22, 1929

OPIUM ADDICTION AND PHYSICAL FITNESS

The problem of the opium habit involves a number of apparently unrelated features. In the initiation of addiction, relief from pain has often been regarded as an important feature; in other instances the development of the pernicious habit appears to be associated with psychologic instabilities or unfortunate environmental influences. Consideration of such possibilities is obviously important in any constructive program intended to avert the misfortunes of the opium habit. As a recent writer [1] has expressed it, the victim may become an antisocial, unmoral, self-centered savage who without hesitation may break any law.

The treatment of addiction, on the other hand, and the prognosis for the person involved, are concerned with the physiology and pathology of the use of the opium alkaloids quite as much as with the social environment and mental outlook of the patient. Intoxication with some drugs or poisons produces bodily defects or functional perturbations that are difficult to correct or eradicate. It may leave signs of permanent injury in its wake. Prolonged undue use of alcohol has often been charged with the production of organic lesions that may remain as a continuous reminder of the harm done and may not yield to any remedial efforts. In considering the relief of opium addiction in its varied forms, the question has often arisen as to whether morphine and its companion alkaloids bring about physical deterioration. The familiar withdrawal symptoms have been interpreted by some observers as indexes of physiologic unfitness.

The elaborate investigations that are being conducted under the guidance of the Philadelphia Committee for the Clinical Study of Opium Addiction in the wards of the Philadelphia General Hospital are already giving a significant answer to some of the questions at issue. The observations that Light and Torrance [2] have reported on behalf of the Committee on Drug Addictions were conducted under highly favorable conditions. The studies consisted in measuring the weights, heights and vital capacities, making thorough physical examinations and subjecting the patients to Schneider's test of physical fitness during the administration of a sufficient amount of morphine to supply their needs, and comparing these observations with normal standards. The patients, numbering nearly a hundred, were addicts for the most part of the "underworld" type and consequently likely to exhibit the more severe symptoms. Light and Torrance have been unable to detect any marked physical deterioration or impairment of physical fitness aside from the addiction per se in the series of cases of opium addiction studied during the administration of morphine. They believe that the existence of considerable emaciation in certain cases is caused by the unhygienic and impoverished life of the addict rather than by the direct effects of the drug. This opinion, based on carefully collected objective data, is in harmony with the oft expressed opinion that, if the drug is used in sufficient amounts in relatively normal hygienic surroundings, the opium addict will escape detection for years and will not show any obvious physical deterioration or impaired physical fitness. The encouraging feature lies in the indicated possibility of excellent physiologic restoration if all the psychologic and sociological antagonisms can be corrected.

1. Lambert, Alexander, in Cecil's Textbook of Medicine, Philadelphia, W. B. Saunders Company, 1927.
2. Light, A. B., and Torrance, E. G.: Opium Addiction: II. Physical Characteristics and Physical Fitness of Addicts During Administration of Morphine, Arch. Int. Med. **43**: 326 (March) 1929.

ALLERGY IN RHEUMATIC FEVER

Investigations of the etiology of acute rheumatic fever and of other rheumatic disorders have brought many conflicting views before the medical profession. Attempts for the most part have been directed toward the isolation of bacteria from the blood or joints of patients showing the characteristic syndrome, and the production of arthritis in animals with the organisms thus obtained. Success in such measures has been achieved in widely varying degree. An English authority is inclined to recommend the discontinuance of the word "acute" with the understanding that the condition once present is always present in some form until death supervenes.

Recently Small [1] isolated a nonhemolytic streptococcus from the blood and various other tissues and fluids of patients with rheumatic fever. Because of certain constant biologic and serologic characteristics he considered this a specific organism and named it *Streptococcus cardioarthritidis*. Vaccines and serums prepared with this organism have received a limited amount of study in the treatment of acute rheumatic fever. Against the specific nature of this organism there is, however, a not inconsiderable mass of evidence. To cite two observations only, Topley and

1. Small, J. C.: The Bacterium Causing Rheumatic Fever and a Preliminary Account of the Therapeutic Action of Its Specific Antiserum, Am. J. M. Sc. **173**: 101 (Jan.) 1927.

Weir [2] isolated streptococci from various types of lesions and succeeded in producing arthritis in rabbits just as well with strains isolated from other sources as with those from patients with acute rheumatic fever. Recently Nye and Seegal,[3] in a series of carefully controlled blood cultures from twenty-five patients, failed to find nonhemolytic streptococci of any of the types described by other observers. In this connection the investigations of Birkhaug [4] and others with skin tests on normal and rheumatic individuals, using autolysates and filtrates of nonhemolytic streptococci which indicated a relative rheumatic susceptibility, should not be overlooked.

Obviously the conflicting results of work by such a large number of investigators require explanation. In a number of recent reports, Derick, Hitchcock and Swift [5] have developed a new approach to the problem. The article by Swift [6] in this issue of THE JOURNAL constitutes an adequate survey of their contribution to the subject. The difficulty encountered in finding organisms in the tissues in this disease and comparison of its manifestations with those of tuberculosis and syphilis led these observers to consider the possibility of an allergic factor. Using strains of nonhemolytic streptococci and so-called *Streptococcus viridans,* they succeeded, by intracutaneous inoculation and other means, in sensitizing rabbits so that when given subsequent injections the rabbits suffered reactions of a severity out of all proportion to the power of the bacteria to produce disease. Strain specificity was not observed. The state of sensitization thus produced they called hyperergy. They found also that sensitization could be maintained only by repeated intracutaneous inoculation. Intravenous inoculation seemed to reduce rapidly this sensitized condition and to produce an immunity.

The application of these principles to rheumatic fever in man offers difficulty and has not as yet been satisfactorily studied. As a possible explanation of the failure to achieve uniform bacteriologic results, however, such a conception offers aid. By an analogous relationship to the primary lesion of tuberculosis or syphilis, some focus of bacterial infection in rheumatic fever may sensitize an individual to subsequent liberation of bacteria or toxins, so that relatively small quantities can produce reactions which together constitute the clinical entity of rheumatic fever. The most probable site for this primary rheumatic lesion is the tonsil, as indicated by the frequent clinical history of acute tonsillitis preceding rheumatic fever. This interpretation recalls the difficulty frequently encountered also in finding the spirochete of syphilis in many secondary and tertiary lesions. While explaining certain of the phenomena of acute rheumatic fever, the conception does not explain, as the authors themselves point out, why persons who are sensitive to streptococci do not all have rheumatic fever. Possibly other factors, such as the vague term "individual resistance," as illustrated in tuberculosis, may serve as explanation.

The conclusions which may be drawn clinically from accepting this view are that not only should infective foci be removed but also there should be an attempt to carry the patient from a hypersensitive to an immune state. The means by which the immune state is to be sought are as yet not fully developed. Moreover, the experimental proof of the mechanism involved and of the specific or nonspecific nature of the primary infection needs further elaboration before any attempt can be made to apply clinically this conception of the disease. Indeed, the more one reads in the field of rheumatic fever, chronic rheumatism and the related disorders, the more one is inclined to take refuge in a broad statement such as that made recently by S. Pisani of Florence in summarizing the results of the famous Conference on Rheumatic Diseases at Bath, England, in 1928. "While we await the discovery of the virus that produces or, perhaps, simply favors the development of true chronic rheumatism," he said, "it is in every case necessary to pay great attention to the constitution, the endocrine-sympathetic system, considered in the completest sense of the term, the condition of the digestive apparatus, the more or less clear tendency of these patients to anaphylaxis." The problem of etiology in rheumatic fever is complicated; a study of treatment yields largely futility and despair. When Richard Warren was asked in the eighteenth century what was good for acute rheumatism, he answered bluntly, "Six weeks." Since that time the two major factors in therapy have been salicylates, or compounds having similar action, and prolonged rest. Rolleston and others are convinced that the influence of salicylates is disappointing in the cardiac phases of the disease. Moreover many clinicians are convinced that it is safest to assume that the heart is involved from the onset in every case of rheumatic fever even though it may not be demonstrated clinically. Swift is convinced that the salicylates are of little or no value in the proliferative changes but may be useful in the exudative changes in joints and tissues. Furthermore, Robert Levy believes that whatever value there may be in roentgen therapy in hearts with rheumatic fever lies in the effect on the exudative processes. In relationship to an organ such as the heart, which must function constantly, the question of rest is relative if not problematic. Here is a field for research where the investigator with anything to offer will find an eager welcome.

2. Topley, W. W. C., and Weir, H. B.: The Lesions Produced in Rabbits by the Inoculation of Streptococci Isolated from Rheumatic and Other Lesions in the Human Subject, J. Path. & Bact. **24**: 333 (July) 1921.

3. Nye, R. N., and Seegal, D.: Nonhemolytic Streptococci and Acute Rheumatic Fever, J. Exper. Med. **49**: 539, 1929.

4. Birkhaug, K. E.: Rheumatic Fever, J. Infect. Dis. **40**: 549 (May) 1927.

5. Derick, C. L., and Swift, H. F.: Reactions of Rabbits to Nonhemolytic Streptococci, J. Exper. Med. **49**: 615 (April) 1929. Hitchcock, C. H., and Swift, H. F.: Studies on Indifferent Streptococci, J. Exper. Med. **49**: 637 (April) 1929. Derick, C. L.; Hitchcock, C. H., and Swift, H. F.: The Allergic Conception of Rheumatic Fever, Canad. M. A. J. **20**: 349 (May) 1929.

6. Swift, H. F.: Rheumatic Fever, this issue, p. 2071.

THE ACIDOSIS OF PREGNANCY

The acidosis of pregnancy has long been a puzzle to students of obstetrics and biochemistry. This does not refer to extreme abnormalities such as are characterized by pernicious vomiting or eclamptic manifestations but rather to the well established phenomena of normal pregnancy. The existence of a lowered alveolar carbon dioxide tension has been known many years. The reduction in the alkali reserve in pregnancy has been described by numerous observers, one of whom has alleged that he detected a lowered plasma carbon dioxide combining power as early as three days following the first missed menstrual period.

As Oard and Peters [1] of Yale University School of Medicine have pointed out, a reduction of the blood alkali reserve may be the result of one or the other or of a combination of both of two factors; namely, an unusual collection of acid in the blood, or a reduction of the fixed base of the blood. There are now no valid reasons for assuming the occurrence of a true ketosis or accumulation of abnormal acids in the blood during pregnancy. Indeed, Harding and Allin [2] of Toronto have concluded from numerous careful observations that in this condition the normal mechanism of ketogenesis is not disturbed. They point out that those observers who report that they have demonstrated a greater tendency to ketone production have failed to take into account the raised metabolism of pregnancy, especially during the later stages, and the amount of antiketogenic material removed from the metabolic mixture by the fetus for the formation of new tissue. These two factors may cause the appearance of ketosis on diets that would not have the same effect in a normal person. Even if one were to grant such a mild ketosis as is reputed to exist in pregnancy, they add, one would not expect a reduction of base to ensue. In studies of acid-base equilibrium in diabetes, Peters, Bulger, Eisenman and Lee found that in moderate or severe, slowly or rapidly developing ketoses, base was released first by bicarbonate and next by chloride to neutralize ketone acids. Except in an overwhelming acidosis, the normal concentration of base in the serum remained unaffected. Oard and Peters have conclusively demonstrated, on the other hand, that even in normal pregnancy there is a reduction of about 5 per cent of total base of the serum. From the work of others, this reduction would appear to be almost entirely at the expense of sodium. There is a concomitant and equal reduction of the anion content of the serum in pregnancy. This reduction is seen in serum protein, serum bicarbonate and organic acid, chiefly in the latter two. Hence Oard and Peters argue that the term "acidosis of pregnancy," as connoting an actual collection of abnormal acids in the blood, is misleading. On the contrary, the reduction of reserve alkali is associated with a diminution of base.

The normal blood picture is speedily restored post partum. Oard and Peters comment that, in view of the remarkable constancy of the concentration of serum electrolytes in normal persons and the resistance, even in pathologic conditions, offered by the body to fluctuations of that concentration, the pregnant organism is unique in its ability to tolerate such changes without obvious symptoms. The Yale investigators point out that the peculiar diminution of serum electrolytes together with the reduction of alkali reserve in pregnancy may be significant as regards the delicate physiologic balance existing in that condition. The violence and suddenness of the reactions of pregnant women to minor accidents, which are comparatively well sustained by the nonpregnant, is a matter of universal experience. A satisfactory explanation for the observed changes is not available.

1. Oard, H. C., and Peters, J. P.: The Concentration of Acid and Base in the Serum in Normal Pregnancy, J. Biol. Chem. **81**: 9 (Jan.) 1929.
2. Harding, V. J., and Allin, Kathleen D.: J. Biol. Chem. **69**: 133 (July) 1926.

THE PROTEIN FACTOR IN PERNICIOUS ANEMIA

The importance of dietotherapy is beginning to be realized in many departments of medicine. Suitable selection of food for the sick has come to vie with the administration of drugs in the management of various types of patients. Clinical research is demonstrating more and more that several types of illness are greatly aggravated by attendant malnutrition, or more often by an outspoken undernutrition which complicates the fundamental disorder. Inadequate food intake predisposes, for example, to so-called nutritional edema in which protein starvation is an etiologic factor. An appreciation of this fact is leading to a change in the dietary prescriptions for certain types of patients suffering from nephrosis. There was a time, not long since, when a diagnosis of nephritis became the indication for an immediate restriction in protein intake on the theory that the abnormally functioning kidneys must be spared from undue work in eliminating nitrogenous waste. Today it is realized that heavy loss of protein may ensue in the urine, regardless of the level of protein intake, and that the depletion of body or blood proteins must be made good by a correspondingly augmented protein intake. Various forms of edema, too, are relieved by dietary changes more effectively than by diuretic or other medicaments.

Something analogous to this appears to apply to the treatment of pernicious anemia, in which such notable progress has been made during the last three years. There are significant indications, if not actual proofs, that the disease is due to improper digestion in the stomach resulting in the lack of a substance necessary for normal cellular metabolism in the hematopoietic system. When the deficient substance is given in the form of liver, the red blood cells are able to mature properly, resulting in rapid changes in the condition

of the blood and in the general metabolism. The anorexia that attends pernicious anemia leads in most patients to negative nitrogen balances, that is, to gradual depletion of the body protein. Most of the earlier occasional successes in securing remissions of the anemia before the advent of liver therapy have been marked by favorable nitrogen balances, whether the change in treatment involved transfusion or some dietary improvement.

Recent studies of Alt [1] at the Peter Bent Brigham Hospital indicate that the liver therapy of Minot and Murphy promotes better nutrition as one aspect of its benefits. He points out that the negative balances often observed in untreated patients with anemia probably lead to a general protein starvation, which is quickly relieved when the bone marrow is made to function properly. In the Boston patients the voluntary caloric intake increased rapidly a few days after treatment was instituted. This, with general subjective improvement, was often the first indication that a remission had begun. A negative nitrogen balance, present at first in every case, became markedly positive while the patient was under treatment. The advantage of better nutrition, with its retention of nitrogenous food factors, is obvious regardless of whether it is a cause or an effect of the remission. As Alt says, the markedly increased deposit of protein observed may be utilized by the bone marrow in its increased regenerative function, but more likely it is chiefly used to supply the protein-starved tissues throughout the body.

Current Comment

SICKLE SHAPED RED BLOOD CELLS

The occasional development of sickle shaped red cells in the blood has been known for many years. As early as 1889 it was intimated by the French hematologist Hayem. At first it was assumed that the distorted shapes were merely mechanical distortions or effects due to alterations in the osmotic conditions of the cell membranes or of their environment. It is significant, however, that sickle cells are exceptionally common in the blood from persons of the negro race. Cooley and Lee,[2] for example, observed sickle cells in 7.5 per cent of 400 colored patients in the Children's Hospital of Detroit. A similar frequency has just been reported from an eastern hospital [3] as the result of the routine examination of the blood of negroes. Among the explanations for the sickle cell phenomenon has been the suggestion that the anomaly represents a peculiar vulnerability to some hemolytic agent. It seems to be congenital, familial and hereditary. Levy,[3] one of the latest students of the problem, has come to the conclusion that it involves a disturbance in erythropoiesis. According to his observations the sickle shaped red blood cells are formed from embryonic normoblasts that have prematurely entered the general circulation; these cells continue their maturation by dividing or extruding their nuclei; the resultant cells, still immature, are then unable to assume the biconcave disk form and continue as ameboid shapes until an alteration is effected that gives them a favorable nidus.

1 Alt H. L.: The Metabolism in Pernicious Anemia, Arch. Int. Med. **43**: 488 (April) 1929.

2. Cooley, T. B., and Lee, Pearl: The Sickle Cell Phenomenon, Am. J. Dis. Child. **32**: 334 (Sept.) 1926.

3. Levy, Joseph: The Origin and Fate of Sickle-Shaped Red Blood Cells, Arch. Path. **7**: 820 (May) 1929.

FUNCTIONS OF THE SYMPATHETIC SYSTEM

The processes in the body over which there is no voluntary control are governed, in part at least, by the action of the autonomic nervous system. This includes the sympathetic nervous system, which has long been assumed to regulate a variety of important physiologic functions. The student of medicine at once calls to mind, though perhaps somewhat vaguely, the innervation of many plain muscles such as those of the alimentary tract and blood vessels; also the action of secretory glands and organs of endocrine function. It comes somewhat as a surprise, therefore, to learn that bilaterally sympathectomized animals can be kept in good health for long periods during which all the routine functions may proceed without obvious disturbance. The investigations of this sort conducted by Cannon [1] at the Harvard University Medical School tend to controvert the view that the superior cervical sympathetic ganglions or the mesenteric nerves are essential for life. Even the medullary chromophil tissue of the suprarenals—in contrast with the cortical portions of the glands—are apparently without vital importance. According to Cannon's experiments, sympathectomy does not prevent the female from performing the functions of reproduction. After bilateral sympathectomy, however, emotional excitement does not cause erection of hairs, consistent increase of blood sugar, polycythemia, relative increase in mononuclear cells or, as shown by a few observations, marked rise of arterial blood pressure. Sympathectomized animals are sensitive to cold; having lost the means of conserving heat, they seek warm places, and when placed in a frigid environment they lose heat more rapidly than normal animals. The basal metabolism usually falls somewhat after sympathectomy, especially after the cervical portion is excised. One naturally asks, in view of such observations, what functions, if any, the sympathicosuprarenal system may actually have in the bodily economy. To this Cannon has replied that this system, though seemingly unnecessary under the sheltered environment of the experimental laboratory, finds its great service at times of critical emergencies when it adjusts the internal organs of the body for use of the mechanisms responding to external exigencies. There is today a widespread belief, though the evidence has long been debated, that epinephrine, the hormone of the suprarenal medulla, is not normally kept in circulation. However, there can be no doubt that it can be liberated under the stimulus of the sympathetic system. This may happen under emotional stress, augmenting the action of the nervous mechanisms; or,

1. Cannon, W. B.: The Physiology of Sympathectomized Animals, Science **69**: 502 (May 10) 1929.

under other needs it may help to increase the metabolic rate, the heart action, the blood sugar and respiration—all in the interest of more effective immediate physiologic performance. After all, there is nothing fundamentally aberrant in the conception that the stresses of life may call for physiologic help that may safely be disregarded amid the quiet of routine existence.

Association News

THE PORTLAND SESSION

Resolution to Be Submitted to the House of Delegates

The following resolution will be submitted to the House of Delegates at Portland by Dr. William Allen Pusey, delegate from Illinois:

WHEREAS, The House of Delegates at its last annual meeting, without dissent, voted that the practice of medicine was not the proper function of corporations and that the American Medical Association should use its utmost endeavors to stop this growing abuse, and

WHEREAS, There is a rapidly growing tendency of organizations controlled by laymen to enter into the practice of medicine, and

WHEREAS, There are numerous new problems arising from this movement having to do with the relationship of physicians with each other, with the public, with industry and with the government, therefore be it

Resolved, That the Judicial Council of the American Medical Association be asked to present to the session of the House of Delegates at the meeting of 1930 a comprehensive statement for the guidance of the American Medical Association concerning the practice of medicine by corporations, by clinics, by philanthropic organizations, by industrial organizations, by demonstrations and by similar organizations, and concerning the relationship of physicians thereto; and that this present House of Delegates meet in special executive session to give preliminary consideration to this subject.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 11:15 o'clock in the morning, central daylight saving time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of June 24-29 will be as follows:

June 24. "Preventing Skin Disease," by Dr. R. G. Leland.
June 25. "Various Vegetable Salads," by Miss Mildred Whitcomb.
June 26. "The Black Death and Other Plagues," by Dr. R. G. Leland.
June 27. "A Health Program for a Village Elementary School," by Dr. John M. Dodson.
June 28. "Ivy Poisoning," by Dr. R. G. Leland.
June 29. "False Dentists and False Teeth," by Dr. R. G. Leland.

Evening Health Hints from Hygeia, 8 o'Clock Central Daylight Saving Time

June 24. Highway Accidents.
June 25. What You Should Know About a Toothbrush.
June 26. Need Dentist in Health Programs.
June 27. Must Revise Attitude Toward Sex.
June 28. Sanitary Engineering Makes Travel Safe.
June 29. Does Your Bread Meet These Tests?

High and Low Obstruction.—It has been stated that "many cases of intestinal obstruction die cured." During the past few years a great deal of work has been done to determine the cause of death in cases of intestinal obstruction, for not infrequently patients have died after correction of a simple obstruction, in which apparently the integrity of the bowel wall had not been interfered with. Clinically it has been recognized for years that there is a distinct difference between high and low intestinal obstruction. Obstruction of the small bowel, especially if high, proves rapidly fatal unless the obstruction of the large bowel is compatible with life for some time. It is important to determine the cause of death; for, if it can be found, a well formulated plan of treatment might be outlined. The indications which should be met in the treatment are often not well understood.—Lewis, Dean: Intestinal Obstruction, *Wisconsin M. J.*, May, 1929.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Society News.—The railroad surgeons of Alabama organized during the annual meeting of the state medical association at Mobile, April 17, electing Dr. Robert L. Sutton, Orrville, president.——The Barbour County Medical Society, Clayton, May 7, was addressed by Dr. Benjamin F. Bennett, Louisville, on urinary disturbances in women.——The student body of the University of Alabama School of Medicine, Tuscaloosa, presented a wrist watch to Henry M. Knower, Ph.D., professor of anatomy, who, it is reported, has resigned.

Health at Birmingham.—Telegraphic reports to the U. S. Department of Commerce from sixty-four cities with a total population of about 30 million, for the week ending June 8, indicate that the highest mortality rate (17.6) was for Birmingham, and that the mortality rate for the group of cities as a whole was 12. The mortality rate for Birmingham for the corresponding week last year was 18.1 and for the group of cities, 12.9. The annual rate for sixty-four cities for the twenty-three weeks of this year was 14.8 as against a rate of 14.2 for the corresponding week of last year. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The facts that some cities are hospital centers for large areas outside the city limits or that they have a large negro population may tend to increase the death rate.

ARKANSAS

Society News.—The Pope County Medical Society sponsored a float in the May Day child health parade at Atkins. The Dallas County Medical Society, Fordyce, was addressed recently by Drs. A. M. Stuart, Manning, on "Bronchial Pneumonia of Children," and Henry H. Atkinson on "Toxemias of Pregnancy."——Dr. Leonidas F. Barrier addressed the Ouachita County Medical Society, Camden, recently, on "Treatment of Diabetes Mellitus."——The St. Francis County Medical Society was addressed, May 16, Forrest City, by Dr. Nall C. McCown on "Varicose Veins of the Lower Extremities," and Dr. Clyde Powell, Round Pond, on "Puerperal Eclampsia." The society met at Hughes, June 20, for an old fashioned "fish fry."

CONNECTICUT

Bills Enacted.—The following bills have become laws: S. B. 243, amending the law relating to optometrists by requiring attendance of three years in a school of optometry and by limiting the use of the word "Doctor" to the appending of the letters "D.O." or other letters indicating the person named to be an optometrist; S. B. 528, amending the law requiring all practitioners of the healing art and nurses to register annually by providing that any person who lives outside the state or who has retired from active practice shall not be required to pay the annual registration fee, and H. B. 833, amending the prior law regulating osteopathy by providing that licensed osteopathic physicians shall have the same rights as licensed physicians and surgeons of other schools, but that they shall not be authorized to practice either medicine or surgery unless they shall pass satisfactory examinations in medicine or surgery, or both, before the Connecticut Medical Examining Board, which examination any registered osteopathic physician shall be entitled to take.

DISTRICT OF COLUMBIA

Dr. Hazen Wins on Appeal.—The court of appeals has reversed a judgment for $15,000 awarded in the supreme court of the district against Dr. H. H. Hazen, based on alleged malpractice. No evidence reasonably justifying the conclusion that Dr. Hazen had been negligent was found and it was conceded that he possessed the requisite professional skill and ability. An earlier judgment in the same case, for $20,000, had been previously reversed by the court of appeals. The patient suffered from tuberculous glands on both sides of the neck and in the arm pits. These, according to the opinion of the court, were completely cured. The patient complained, however, because of the subsequent development of telangiectasis on both sides of the neck.

Society News.—The Medical Society of the District of Columbia was addressed, May 15, by Dr. William H. Hough on "Syphilis and Pregnancy"; by Mr. Martin W. Hysong on "Relation of the Physician and the Funeral Director with Reference to the Performing of Autopsies," and Dr. Joseph S. Wall, "Report of the Legislative Committee in Explanation of the Practice Act." The society held a meeting, May 18, in memory of Dr. Daniel S. Lamb, who was for years associated with the Army Medical Museum. The society calls attention to the fact that all its members must now file application for a license to practice medicine in the district under the terms of the new Healing Arts Act. The blanks, which can be had at the health office, must be signed in the presence of a notary. ——Dr. Ray Lyman Wilbur, secretary, U. S. Department of the Interior, gave the address at the commencement of Howard University, June 7, and June 3, at Goucher College, Baltimore.

Society Studies Traffic Problem. — Recommendations of the ophthalmology and otolaryngology section of the Medical Society of the District of Columbia on requirements for vision and hearing for automobile drivers having been submitted, the society's traffic committee referred them to the American Automobile Association, the registrar of motor vehicles of Pennsylvania, the president of Gallaudet College and the director of traffic of the district. The committee, in a report to the society, said that all phases of safety were considered by a national conference instituted by Secretary Hoover of the department of commerce in 1924. This conference meets every two years and its conclusions have been formulated into a model traffic ordinance. The ophthalmology and otolaryngology section recommended that applicants for licenses to drive motor vehicles be examined by a physician when the vision was less than 20/40; that there be no double vision; that the temporal fields be normal; that the hearing test by the spoken voice at 2 feet be audible in at least one ear, and that drivers who have serious accidents be examined before their licenses are renewed. The American Automobile Association replied, in part, that "until those who wilfully disregard the common courtesies and laws of driving are removed from the streets and highways, we will oppose subjecting the great majority of motorists who have been operating without serious accident to mandatory physical examination." The registrar of motor vehicles said that the Pennsylvania code requires applicants to have at least 20 per cent of normal vision. The president of Gallaudet College, a school for the deaf, believes that the hearing requirement of the ophthalmology and otolaryngology section is not necessary. He has known many deaf persons who have driven in cities and toured throughout the country with no serious accidents. The director of traffic for the District replied that, at present, if the sight of an applicant is found defective, he is referred to a physician for examination and correction where possible.

The traffic committee of the Medical Society of the District of Columbia (Drs. Edward G. Seibert, Benjamin F. Weems, Jr., and J. Russell Verbrycke, Jr.) after careful consideration, concluded that relatively few accidents occur because of sight and hearing defects. Mental and moral responsibility, they say, is a factor of vastly greater import. The committee considered this subject of such importance that, if approved by the local society, the report should be submitted for consideration to the House of Delegates of the American Medical Association.

FLORIDA

Bill Enacted.—S. B. 233, creating the Florida Crippled Children's Commission and providing for the appointment, term of office and manner of succession of the members thereof, has become a law.

Bills Introduced.—S. B. 4 proposes to create the office of state health officer; S. B. 23 and H. B. 127 propose to amend the present law relating to the compensation allowed physicians in insanity inquests by allowing $10 as the examination fee; H. B. 89 proposes to amend the present medical practice act by providing for the issuance without examination of licenses to practice medicine: (1) to applicants holding certificates of qualification from the National Board of Medical Examiners; (2) to active, detached, retired or honorably discharged commissioned officers of the regular medical corps of the United States Army, Navy or Public Health Service, and (3) to duly qualified physicians licensed through examination in such other states as have standards equal to those of Florida and accord similar privileges to Florida licentiates; H. B. 131 proposes to levy the following annual occupational taxes, among others, on chiropractors and chiropodists, when permanently located, $10 and when nonresident or traveling, $50 for each county; on trained nurses, $10; on optometrists, from $10 to $25, depending on the sizes of the towns in which they practice, and on itinerant venders of drugs, $250; H. B. 132 proposes to levy an annual occupational tax of $10 on practitioners of medicine, osteopathy, chiropractic, chiropody, dentistry and optometry; and H. B. 205 proposes to authorize the creation of a county board of health in any county in the state, to consist of three members appointed by the governor from a list of not less than five recommended by the county board of commissioners and the state board of health.

GEORGIA

Society News.—The Eye, Ear, Nose and Throat Club of Georgia, Atlanta, was addressed, at the annual banquet, May 8, by Drs. Morris Fishbein, Chicago, editor of THE JOURNAL, and by Grady E. Clay, Atlanta. Dr. George B. Smith, Rome, was elected president for the ensuing year; Dr. Cecil Stockard, Atlanta, vice president, and Dr. William O. Martin, Jr., Atlanta, secretary-treasurer. The club contributed $50 to the Abner W. Calhoun Lectureship Fund.——Dr. Adrian D. Williams, Folkston has been elected president of the Southeast Georgia Log Rolling Association.——Dr. Stuart Graves, dean and professor of pathology, University of Alabama School of Medicine, gave the Alpha Omega Alpha lecture at Augusta, June 1, on "Relationship Between Premedical Education and Medical Education," and on June 3 addressed the graduating class on "American Medicine and Young Graduates."

ILLINOIS

Bill Enacted.—H. B. 525 has become a law, amending the Workmen's Compensation Act by providing, among other things, for stated rates of compensation for the total and permanent loss of one ear or both and for the loss of one or both testicles; also, that when a physical examination is made by a surgeon engaged by the employee and there is no surgeon present on behalf of the employer, the employee's surgeon shall furnish to the employer a copy of the report furnished to the employee; and, further, that hospital records certified as true and correct by the officer in charge shall be admissible in compensation courts without any further proof as evidence of the medical and surgical matter stated therein, but shall not be conclusive proof.

Chicago

Society News.—The Chicago Gynecological Society was addressed, June 21, at 50 East Erie Street by Drs. Alfred J. Kobak on "Fetal Bacteriemia"; Gustav Kolischer, "Diathermy in Gynecology," and William C. Danforth, Evanston, and R. M. Grier, Evanston, "Treatment of Fbroids Based upon a Series of 233 Cases."——The Mu chapter of the Alpha Pi Omega medical fraternity was addressed, May 13, by Dr. William Allen Pusey on "The Country Doctor."——The Chicago Orthopedic Club was addressed, June 14, by Drs. Emil D. W. Hauser on "Treatment of Neglected Clubfoot," and Fremont T. A. Chandler on "Elbow Case X-Rays." Dr. Philip Lewin presented roentgenograms.——The American Dental Association, whose headquarters are in Chicago, has given $3,500 to the University of California for work to be conducted by the stomatologic group of the Hooper Foundation for Medical Research.

IOWA

License Revoked. — The state commissioner of health reports that the license of Dr. William B. Stoker, Ottuma, was revoked, June 13, because of unprofessional and dishonorable conduct, he having associated, it is alleged, with an herb doctor, through which arrangement "marvelous cures" for cancer were advertised.

LOUISIANA

Society News. — The first meeting of the golfers of the Orleans Parish Medical Society, May 29, was attended by about forty physicians. Another tournament was planned for June in the hope that they would become monthly parties. First prize was won by Dr. Laurence R. DeBuys with a net score of 70.——The house of delegates of the Louisiana State Medical Society has accepted the offer of Tulane Medical College, New Orleans, to provide quarters for the society in their proposed new building.——The Orleans Parish Medical Society, New Orleans, was addressed, May 13, by Dr. Daniel N. Silverman on "Bacillary Dysentery in Louisiana." Among other speakers in May were Drs. Philip J. Saleeby on "Results with Potassium Sulphocyanate in Hypertension," and James H. Watkins, "Prognostic Value of Daily Spinal Fluid Sugar Determination During Specific Serum Therapy of Meningococcal Meningitis."

MARYLAND

Personal. — Dr. Aquilino Villanueva, chief of the health department of Mexico, as a guest of the Rockefeller Foundation, spent several days in Baltimore studying the state department of health, the city health department and the school of hygiene and public health of Johns Hopkins University.—— Dr. William S. Thayer, Baltimore, President of the American Medical Association, has been appointed a member of the education commission which will study the relation of the government to education by Secretary of the Interior Wilbur.

Society News.—Adolph Lewisohn, New York, has given $30,000 to endow a fellowship at the Wilmer Ophthalmological Institute at Johns Hopkins Hospital, Baltimore.——Delegates from many countries to the International Hospital Congress in Atlantic City visited Johns Hopkins University School of Medicine, June 12, and were escorted about by a large and distinguished group of the faculty.——Dr. John R. Oliver, psychiatrist to the supreme bench of Baltimore, will address the fifth annual conference of the College of Preachers of the Washington Cathedral on "What a Priest Needs to Know of Mental Disorders."——The Baltimore County Medical Society was addressed, June 19, by Drs. Nathaniel M. Beck on "Nasal Feeding in the Psychoses," and by Dr. John E. Legge on "Some Diagnostic Features of Gallbladder Disease."

Maryland Alumni Reunion.—The alumni association, comprising graduates of the University of Maryland School of Medicine, the former Baltimore Medical College, and the College of Physicians and Surgeons of Baltimore, held a reunion, May 6-8, which was attended by about 400 delegates. Among the speakers were Drs. William W. Babcock, now professor of surgery and clinical surgery at Temple University School of Medicine, Philadelphia; Maurice C. Pincoffs, professor of medicine; James M. Craighill; Randolph Winslow, professor emeritus of surgery; Hiram Woods, professor emeritus of diseases of the eye and ear; Porter P. Vinson, assistant professor of medicine, University of Minnesota Graduate School of Medicine, and James M. H. Rowland, dean and professor of obstetrics, University of Maryland School of Medicine. Many alumni held clinics. The second day was given to golf, tennis and a dinner. Dr. Alexius McGlannan was elected president of the alumni association for the year, and Dr. Howard M. Bubert, secretary.

MINNESOTA

Drs. Mayo Honored.—At the diamond jubilee of the city of Rochester, the Olmsted County Business Men's Association, June 11, placed a tablet which was inscribed "as a tribute to Rochester's most illustrious citizens, William James Mayo, Charles Horace Mayo, surgeons, scientists, lovers of their fellowmen." The Mayos were guests of honor also, June 6, at a testimonial dinner, given by the faculty of the clinic and foundation. The faculty voted to establish an annual W. J. and C. H. Mayo lectureship to be delivered in Rochester by a member of the faculty on a subject related to some contribution which the Mayo family had made to the advancement of medicine. Dr. Henry S. Plummer has been requested to deliver the first Mayo lecture.

MISSOURI

Changes in Faculty at Medical School. — The dean of St. Louis University School of Medicine, St. Louis, announces changes in the organization of the departments, including the establishment of a full department of radiology with Dr. Leroy Sante as director, and the division of the anatomy department into a section of micro-anatomy in charge of Dr. Albert Kuntz, and a section of gross anatomy in charge of Dr. Daniel M. Schoemacker. Dr. William D. Collier has been made director of the department of pathology and Dr. William E. Sauer, director of the department of otolaryngology. Drs. Sante and Collier have been promoted to full professorships as have also Drs. William P. Glennon and Harvey S. McKay in the department of surgery.

The following have been advanced or appointed to the positions indicated:

Dr. Joseph L. Gross, assistant in anatomy; Dr. Wesley W. Hanford, assistant in gynecology and obstetrics.

The following have been advanced to senior instructorships in the department of internal medicine: Drs. Rudolph V. Powell, Hyman I. Spector, Oswald P. Falk, Alphonse McMahon and Eugene Lee Shrader. The following have been advanced to instructorships: Drs. Harry G. Bristow, August A. Werner and James H. Cummings. Dr. Joseph M. Keller has been promoted to associate professor of ophthalmology; Drs. Maurice L. Greene and Charles J. Gissy to instructors, and Drs. Theodore E. Schindewolf and Albert Hooss to assistants. In the department of otolaryngology, Dr. Hugo Reim has been advanced to associate professor, and Dr. Paul F. Kistner to senior instructorship; John T. Brundage, Ph.D., to instructor in pharmacology; Dr. Joseph C. Peden to senior instructorship in radiology; Dr. Edward H. Kessler to senior instructorship in radiology; Dr. Paul F. Titterington to senior instructorship in radiology; Dr. Lex G. McCutcheon to instructorship in radiology; Dr. Edgar W. Spinzig to instructorship in radiology; Dr. John R. Roberts to senior instructorship in pathology. In the department of surgery the following have been advanced to senior instructorships: Drs. Forest H. Staley, Walter E. Hennerich, Herman Maas, James F. Clancy and V. Siegel; C. J. Vollmar and Warren G. Marston are to be assistants in surgery. In the department of urology, the following have been advanced to senior instructorships: Dr. Benjamin F. May and Dr. Joseph E. Glenn.

Dean Schwitalla also announces the creation of the Wolfort Scholarship to help a needy student of superior excellence not only in his undergraduate medical career but also in pursuit of a specialty for two additional years either in this university or in another. The donors were Mr. Sigmund and Miss Clara Wolfort in memory of their parents.

NEBRASKA

State Medical Election.—At the recent annual meeting of the Nebraska State Medical Association at Omaha, Dr. Karl S. J. Hohlen, Lincoln, was made president-elect; Dr. Frank S. Owen, Omaha, president; Drs. Albert L. Cooper, Scottsbluff, and Joseph Bixby, Geneva, vice presidents, and Drs. Benjamin F. Bailey, Lincoln, and Claude P. Fordyce, Falls City, delegate and alternate, respectively, to the American Medical Association. The next annual meeting will be at Lincoln.

Society News.—The mayor of Omaha proclaimed the week of May 12-18 as the second annual health week, in conjunction with the sixty-first annual meeting in Omaha of the Nebraska State Medical Association.——Enlargement of the classrooms and laboratories at Creighton University School of Medicine, Omaha, will permit the admission this fall of 100 freshmen as compared with the previous average of about fifty-four.—— Dr. Margaret E. Hammond, Lincoln, has been elected president of the Nebraska Association of Medical Women for the ensuing year.

NEW YORK

Society News. — Plans were announced at the annual dinner of the Alumni Association of Fordham University for the reopening of the medical school, which was discontinued several years ago because of financial difficulties.

Personal.—Newton Memorial Hospital, Cassadega, and the Cattaraugus county tuberculosis sanatorium, Olean, have been donated $60,000 by Robert J. Gross of Dunkirk.——The average per capita cost at St. Joseph Hospital, Far Rockaway, during 1928, was $6.52, it is reported. The hospital gave 3,511 days of free treatment.——Dr. Lyman I. Thayer has resigned as associate director of the division of tuberculosis of the state department of health to become superintendent of the Westmount Sanatorium, Glens Falls, in Warren County, and Dr. Eugene W. Bogardus, Syracuse, has been temporarily appointed to succeed Dr. Thayer.

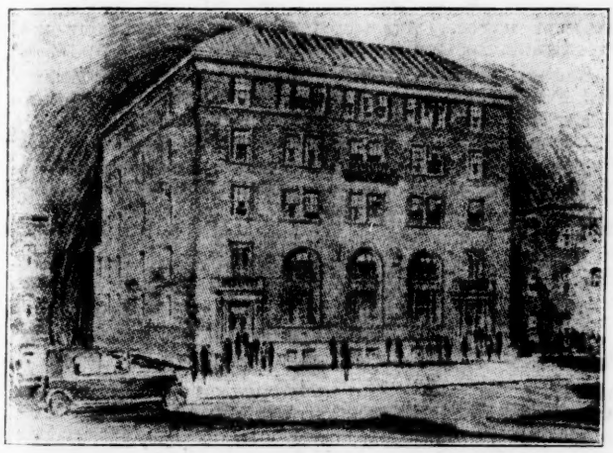
New York City

Impressing Aldermen with the Noise of New York.— The New York Anti-Noise Society plans to appear before the city board of aldermen to give a practical two-minute demonstration of the city's commonest noises. It was proposed by the New York *Times* that, to make the demonstration truly effective on the aldermen, the society announce beforehand when the demonstration will be, so that the thousands of persons who daily suffer from unnecessary noise can be present. New York's din is one long cacophony of riveting machines, gas engines, horns, factory and steamboat whistles and voices, the whole being bound together by the discordant tones of 500,000 loud speakers. When the anti-noise society appears before the aldermen, it might help to read from this issue of THE JOURNAL, page 2118, about the crusade against noise in Germany.

Society News.—Dr. George W. Kosmak has been elected president of the New York Obstetrical Society for the ensuing year, and Dr. Edward A. Bullard, secretary.——Prof. F. M. Tandler of the University of Vienna and commissioner of health of Vienna lectured at the New York Academy of Medicine, May 28, on social welfare.——Nathaniel Lord Britton, Ph.D., since 1896 director in chief of the New York Botanical Garden, has tendered his resignation. Dr. Britton reached the age of 70 years in January.——The New York Academy of Medicine gave a dinner, June 5, to foreign delegates en route to the International Hospital Congress at Atlantic City. Dr. William H. Park was toastmaster.——The section of pediatrics unveiled a tablet in the New York Academy of Medicine, May 9, in memory of Dr. Luther Emmett Holt. More than 400 of Dr. Holt's students contributed toward the tablet.

Personal.—Dr. Francis Peyton Rous, Rockefeller Institute for Medical Research, gave the Linacre Lecture of St. John's College, Cambridge, May 6, on "The Modern Dance of Death."——Dr. Bernard Levinson has been appointed adjunct professor of gastro-enterology at the New York Polyclinic Medical School and Hospital.——Drs. Howard Potter, Leland E. Hinsie and Robert B. McGraw have been promoted to clinical professors of psychiatry at the College of Physicians and Surgeons of Columbia University.——Dr. Joshua H. Leiner has been appointed adjunct professor of neurology at the New York Polyclinic Medical School and Hospital.——Dr. Joseph Eastman Sheehan sailed, June 13, to speak before the European Congress of Surgeons in Brussels on "Present Status of Reparative Surgery."——Dr. Lewis K. Neff has resigned as director of the medical service at Harlem Hospital, following many years of service. Dr. Neff, who is a veteran of the Spanish-American and World wars, was guest of honor, June 8, at a dinner given by the military unit of the hospital.——Dr. Linsly R. Williams, executive director, New York Academy of Medicine, was elected president of the National Tuberculosis Association at the annual meeting in Atlantic City, May 29.

Queens County Society Starts Building.—The Queens County Medical Society began the construction of its new home in Forest Hills, on Queens Boulevard, June 10, when the first spade of earth was turned by the president, Dr. William John Lavelle. Dr. Thomas C. Chalmers, chairman of the board of trustees, was the principal speaker. The four story society home will provide for the library, which in time will amount to 150,000 volumes. One floor will contain section rooms with seating capacity varying from sixty to 150. The



second story will be a mezzanine floor for the auditorium and will also have the offices for the county and allied societies. The auditorium will be on the ground floor, and in the basement will be the kitchen, check room and dining room. Queens became an independent society in 1921 after having been a part of the Queens-Nassau Medical Society. It represents the largest area in the city of New York, and never before has it owned a home, although organized in 1806. The building will occupy about one half of the site which the society owns. The other portion is expected to be sold after the street is improved to provide for retiring of the bonds which have been issued to erect the building. Queens County, Dr. Chalmers writes, has about $90,000 in cash to start building, and $212,000 has been subscribed by 522 physicians in the county. The remainder of the $250,000 necessary for the building was subscribed by dentists, trained nurses and patients. The banks have agreed to furnish $100,000 as needed on the assignment of these pledges. There will be no other mortgage on the building ahead of the bond issue. The undertaking has already been a stimulus to the organization, the membership of the society having increased considerably since it was initiated.

NORTH CAROLINA

State Medical Election.—At the recent annual meeting of the Medical Society of the State of North Carolina, Greensboro, Dr. Lester A. Crowell, Lincolnton, was elected president; Drs. William B. Murphy, Snow Hill, William E. Warren, Williamston, and Noah B. Adams, Murphy, vice presidents, and Dr. Lewis B. McBrayer, Southern Pines, secretary-treasurer, reelected.

Society News.—The Ninth District Medical Society sponsored a course in pediatrics, June 16, at Statesville. Physicians were invited to bring patients for consultation. The staff of Davis Hospital made the laboratory and other examinations of the children. The clinic was held in the auditorium of Mitchell College. The following physicians lectured and held clinics without remuneration: Drs. Frank H. Richardson, Black Mountain; George W. Kutscher, Jr., Swannanoa; Samuel F. Ravenel, Greensboro; John R. Ashe, Charlotte; Yates W. Faison, Charlotte, and Lewis W. Elias, Asheville.

Personal.—Dr. Thomas W. M. Long, a member of the state board of medical examiners, has been elected mayor of Roanoke Rapids.——Dr. Charles H. Cocke, Asheville, has been appointed a member of the board of governors of the American College of Physicians.——Dr. Paul P. McCain, Sanatorium, has been elected a member of the board of directors of the National Tuberculosis Association, and Dr. Romulus L. Carlton, Winston-Salem, has been made a member of the executive committee.——Dr. John T. Burrus, High Point, a past president of the Medical Society of the State of North Carolina, has been appointed on the governing board of the state hospital for the insane at Morganton.——Dr. Clarence A. Shore, Raleigh, received the honorary degree of doctor of laws at the recent commencement of the University of North Carolina; Dr. Shore has been director of the state laboratory of hygiene since its beginning.

OHIO

Professor Lloyd Honored.—Eighty friends of John Uri Lloyd, Phar.M., professor emeritus of chemistry and pharmacy at the Eclectic Medical College, gave a dinner at the Cincinnati Club, April 18, to commemorate his eightieth birthday. Dr. John M. Withrow was toastmaster. Among the speakers were E. G. Eberle, Phar.M., editor of the *American Pharmaceutical Journal*, Prof. Edward Kremers, Sc.D., of the University of Wisconsin, and former Judge John W. Peck.

Cleveland Wins Golf Tournament.—The ninth annual tournament of the Ohio State Medical Golf Association played, May 6, was participated in by 135 physicians. The team from Cleveland won the team championship. However, the champion individual golfer was Dr. Joseph L. McEvitt, Akron, whose score for 27 holes was 126. He tied with Dr. Ernest D. Saunders, Cleveland, but won in the play-off of six holes. Third prize went to Dr. John D. Fouts of Dayton. At the banquet following the tournament the golf association elected Dr. Carl A. Hyer, Columbus, president for the year, and Dr. John B. Morgan, Cleveland, secretary.

Too Many Medical Meetings.—The house of delegates of the Ohio State Medical Association at the Cleveland meeting adopted a resolution expressing the belief of many members that the frequent occurrence of medical, semimedical or specialized scientific meetings has become a burden to the individual physician, consuming time which he feels should be devoted to patients and his family or to recreational and avocational advancement. The society also regarded them a menace to unified medical organization. It was resolved that each county medical society be urged to give serious study to this problem and endeavor to work out a cooperative solution with hospitals and special societies whereby the number of meetings can be curtailed or amalgamated.

Personal.—Dr. Nathan Hammond, Plainfield, has been reelected a member of the board of health of Coshocton County for a term of five years.——Dr. Herman O. Hodson, Leesburg, has been appointed health officer of Highland County to succeed the late Dr. Lockhart Nelson.——Hugo Fricke, Ph.D., formerly director, department of biophysics of the Cleveland Clinic Foundation, has been appointed to take charge of the biophysical laboratory being constructed by the Long Island Biological Association at Cold Spring Harbor. The building will contain a chemistry laboratory and roentgen-ray room, a machine shop, a record room and research rooms, the last relatively soundproof, free from vibration and of comparatively constant temperature. The laboratory will be in use this summer.——Dr. Nathan C. Foot, professor of pathology, University of Cincinnati College of Medicine, will spend a sabbatical year of study abroad, returning in the fall of 1930.

Society News.—At the recently organized Cleveland Ophthalmological Society, Dr. Clarence King, Cincinnati, spoke on "Instruments and Procedures of Value in Cataract Extraction"; Dr. William E. Bruner was elected president for the ensuing year.——The Seventh Councilor District Medical Society met at the Belmont Hills Country Club, June 12, for an all-day meeting and golf. The seventh district comprises Coshocton, Tuscarawas, Columbiana, Carroll, Jefferson, Harrison, Belmont and Monroe counties.——Dr. Rosco G. Leland, member, bureau of health and public instruction, headquarters, American Medical Association, Chicago, addressed the Summit County Medical Society, Akron, June 4, on the value of annual physical

examination.——The Mahoning County Medical Society and the Youngstown Dental Society were addressed, May 21, by Ura G. Rickert, D.D.S., Ann Arbor, Mich., on "Focal Infection as Related to Medicine and Dentistry."——Dr. Louis Howard Schriver has been elected president of the Cincinnati Academy of Medicine for the ensuing year.——The annual Alpha Omega Alpha lecture in Cleveland was given in the medical library, June 19, by Prof. J. Jadassohn, director, dermatologic clinic, University of Breslau, Germany, on "Present Status of Treatment of Syphilis." The medical profession was cordially invited. ——C. M. Finfrock, Cleveland, addressed the Toledo Academy of Medicine, June 7, on "Present Status of Medical Jurisprudence as Affecting the Medical Profession and Laity."——Dr. Charles A. Neal, state director of health, Columbus, addressed the Clark County Medical Society, Springfield, recently, on periodic examinations of the apparently healthy. ——Dr. Charles W. McGavran, Columbus, addressed the Ashland County Medical Society, May 3, on "Diabetes Mellitus: The Present-Day Outlook."——Dr. John O. Bower, Philadelphia, addressed the Summit County Medical Society, Akron, May 14, on "Controllable Factors Entering Hospital Mortality, with Special Reference to the Acute Abdomen."——The Columbus Academy of Medicine and the Columbus Hospital Society jointly were addressed on national hospital day by Dr. Bert W. Caldwell, Chicago, executive secretary of the American Hospital Association, on "American Hospital Movement," and by Father Moulinier, secretary, Catholic Hospital Association, on "The Soul of the Hospital."

OKLAHOMA

Bills Introduced.—H. B. 92 proposes to create a state board of chiropodists and to regulate the practice of chiropody; H. B. 129 proposes to authorize the excise board of each county to make an annual levy of not exceeding 1 mill on all taxable properties for the care of tuberculous patients. H. B. 130 proposes to require annual registration of persons, firms or corporations engaging in the business of selling at retail drugs or poisons for the treatment of diseases or compounding physicians' prescriptions.

PENNSYLVANIA

Personal.—Dr. Charles A. Haff, Northampton, was elected governor of the fifteenth district of Rotary International at the recent annual conference.——The late Dr. David M. Rank set aside $5,000 in his will for the benefit of the poor of Annville.

Society News.—The Lycoming County Medical Society, Williamsport, was addressed, June 14, by Dr. Damon B. Pfeiffer, Philadelphia, on "Carcinoma of the Rectum and Large Bowel."——The annual meeting of the Seventh Councilor District and West Branch Medical Association, Jersey Shore, June 26, will be addressed by Drs. Frank C. Hammond, dean and professor of gynecology, Temple University School of Medicine; Alfred Stengel, professor of medicine, University of Pennsylvania School of Medicine, and Donald Guthrie, Sayre, trustee and councilor of the state medical society.——The Canti Cancer Film was presented recently before the Dauphin County Medical Society. The speakers were Drs. George E. Pfahler, Philadelphia, and George A. Soper, Ph.D., of the American Society for the Control of Cancer.——The final lecture in the graduate course given by the Washington County Medical Society, Washington, June 12, was by Dr. Thomas M. T. McKennan, professor of neurology, University of Pittsburgh School of Medicine, on "Allergic Reactions as a Factor in Certain Diseases of the Nervous System."

Philadelphia

Dr. Bronk Director of Research in Medical Physics. —Detlev W. Bronk, Ph.D., has been appointed Johnson professor of biophysics at the University of Pennsylvania School of Medicine and director of the Eldridge R. Johnson Foundation for Research in medical physics. Dr. Bronk resigned as professor of physiology and biophysics at Swarthmore to accept this position. He has held research fellowships at the universities of Cambridge and London (THE JOURNAL, Nov. 10, 1928, p. 1471).

Jefferson Will Build a New Clinic.—At the one hundred and fourth annual dinner of Jefferson Medical College alumni, the president of the board of trustees announced plans to erect an eight story outpatient department, costing $1,000,000, of which Cyrus H. K. Curtis has contributed $500,000. The new clinic will be on the northwest corner of Tenth and Walnut streets. Jefferson conferred 142 medical degrees at commencement, June 7, and an honorary degree of doctor of laws on Dr. Lawrence F. Flick. Forty-seven of this graduating class received commissions as first lieutenants in the medical reserve corps. The commencement address was delivered by Lawrence F. Abbott, Cornwall, N. Y., on "The Patient Looks at the Doctor." Jefferson, in 104 years, has graduated 15,193 students.

Personal.—Dr. Samuel Goldberg has been appointed associate professor of pediatrics at Temple University School of Medicine.——The late John B. Warden of Philadelphia, who died at sea last November, is reported to have willed about $4,000,000 to the American Hospital at Neuilly, Paris, France, the estate to go to the hospital on the death of his widow. ——A portrait of Dr. Hiram R. Loux, professor of genitourinary surgery at Jefferson Medical College, was presented to the college by the senior class, May 12.——Dr. Charles D. Hart, president of the Philadelphia Council of Boy Scouts, has received the "silver Buffalo award for distinguished service to manhood."——Dr. Joseph M. Hayman, Jr., instructor in pharmacology, University of Pennsylvinia School of Medicine, has been appointed associate professor of medicine at Western Reserve University School of Medicine, Cleveland.—— Dr. Frank C. Hammond, dean and professor of gynecology, Temple University School of Medicine, was awarded the honorary degree of doctor of science at the forty-third annual commencement of the university.

VIRGINIA

Dr. Cooke Receives Medal.—A gold medal from Congress has been received by Dr. Robert P. Cooke, Rockbridge county health officer, for his public service during the experimental investigation of yellow fever by the Walter Reed Army Commission in Cuba in 1900. Dr. Cooke, who was then an acting assistant surgeon, volunteered to expose himself during the investigation to fomites (THE JOURNAL, March 23, p. 984).

Society News.—Dr. John Shelton Horsley, Jr., Richmond, and Dr. William H. Park, New York, addressed the Southwestern Virginia Medical Society at Pulaski, recently, on intussusception in an adult illustrated with lantern slides, and the prevention of diphtheria and the use of serum in pneumonia, respectively.——Dr. Dean B. Cole was elected president of the Virginia Tuberculosis Association at the annual meeting in Richmond.——Dr. Francis W. Upshur, Richmond, has resigned as executive surgeon of the Virginia Electric and Power Company after about twenty-six years of service; he will devote his time to private practice.

WASHINGTON

License Surrendered.—Dr. David M. Angus, Seattle, pleaded guilty, May 15, to performing an illegal operation and was sentenced to six months in jail. The sentence was suspended in view of signed statements by two physicians that confinement might prove fatal because of his age and physical condition. The *Health Messenger* says that Dr. Angus, who has been licensed for nearly half a century, surrendered his license in open court and has closed his offices in the Pantages Building.

Personal.—The King County Medical Society, Seattle, which is collecting portraits and busts of local physicians, has been given a portrait of Lewis R. Dawson, a pioneer Seattle physician.——Dr. William D. Kirkpatrick has been elected president of the Bellingham Rotary Club, and Dr. Donald A. Nicholson, Seattle, president of the Washington Society for Mental Hygiene. ——Dr. James Tate Mason, Seattle, has been elected a member of the board of governors of the Sons of the Revolution.—— Dr. Adolph J. Osterman, Mount Vernon, has been appointed health officer of Skagit County to succeed Dr. George Shorkley, resigned.——Lawrence T. Koba, who recently sought an internship in hospitals in New York on the claim that he was a graduate of Johns Hopkins University School of Medicine, is said to have moved to 670 Jackson Street, Seattle (THE JOURNAL, April 6, p. 1193).

Society News.—The Pierce County Medical Society was addressed, recently, by Drs. Alvia G. Nace, Tacoma, on "The Cost of Medical Care"; Edward A. Rich, Tacoma, "The Patient and Hospital Expense," and Claude C. Leaverton, Tacoma, "Résumé of the Public Health Education Program." ——The Snohomish County Medical Society was addressed, recently, among others, by Dr. Walter Raymond Jones, Seattle, on "The Venereal Situation in Washington."——Stephen B. L. Penrose, LL.D., president of Whitman College, addressed the Walla Walla Valley Medical Society, recently, on "Marcus Whitman, The First Doctor in the Pacific Northwest." Dr. Penrose said, it is reported, that the birth of Dr. Whitman's daughter, Alice, was the first case of obstetrics in a white family between the Rockies and the Cascades. Dr. Whitman,

who came west to be helpful to the American Indian, answered calls as far as 275 miles from his home.——The Pierce County Medical Society was addressed, May 14, by Drs. Archibald W. Howe, Tacoma, on "The Von Schilling Blood Count"; Edgar F. Dodds, Tacoma, on "Treatment of Fractures of Hip" with motion pictures, and Howe and Ludwig on mastoiditis.

WYOMING

State Medical Meeting at Casper, June 24-25.—The twenty-seventh annual meeting of the Wyoming State Medical Society will be held at Casper, June 24-25, under the presidency of Dr. Frank A. Mills, Powell. The program includes special clinics at the Natrona County Hospital, and addresses by Drs. Claude E. Cooper, Denver, on "An Important Economic Problem of the Profession"; Clyde A. Roeder, Omaha, "Analysis of Intestinal Obstruction and Its Treatment"; John G. Sheldon, Kansas City, Mo., "Some Points in Surgery of the Biliary Apparatus"; Chester E. Harris, Basin, "The Doctor's Collection Problem"; Victor R. Dacken, Cody, "Treatment of Burns"; Fred W. Phifer, Wheatland, "X-Ray Films and Their Interpretation"; Walter H. Hassed, Cheyenne, state health officer, "Annual Registration of Licensed Physicians"; George P. Johnston, Cheyenne, "Surgical Abdomen"; Willis D. Gilmore, superintendent, state tuberculosis sanatorium, "Tuberculosis as Found in Wyoming," and Charles H. Solier, Evanston, "The New Wyoming Lunacy Law." The Natrona County Medical Society will give a banquet, Monday evening. Golf will be arranged, Tuesday, to suit the members. The women's auxiliary will be entertained at luncheon, Monday, at the home of Dr. and Mrs. Homer R. Lathrop on the side of Casper Mountain. Other entertainment will be announced during the meeting.

GENERAL

Automobile Death Rate Climbs.—In the four weeks ending May 18, there were 582 automobile deaths reported to the U. S. Department of Commerce in seventy-eight large cities of the United States as compared with 537 in the four weeks ending May 19, 1928. There were 7,702 deaths in seventy-eight cities for the year ending May 18 as compared with 7,228 for the year ending May 19, 1928, giving rates, respectively, of 23.5 and 22.4 per hundred thousand of population, an increase of 5 per cent in the rate in one year.

Renewal of Registration Under Harrison Narcotic Law.—Physicians who desire to continue to administer, dispense and prescribe narcotics must renew their registration under the Harrison Narcotic Law on or before June 30, paying the annual tax, $1. Failure to do so carries with it liability to criminal prosecution and subjects the tardy registrant to a 25 per cent increase in the tax. Registration in class IV carries with it the right to administer, dispense and prescribe narcotics generally, except the right to *dispense* so-called exempt narcotic preparations. If a physician does not desire to dispense such preparations, registration in class IV is sufficient. If he desires to dispense them, as well as to administer, dispense and prescribe narcotics generally, he must register in both class IV and class V, but no extra tax is collectible for the dual registration.

Serologic Laboratory Conference.—The second International Laboratory Conference on the Serodiagnosis of Syphilis held in Copenhagen, May 21-June 4, 1928, at the invitation of the League of Nations, was attended by thirty-seven invited representatives from nineteen countries. Among the resolutions adopted by the conference were the following:

1. That, in spite of increased sensitiveness which the various serodiagnostic methods have shown at the present conference, serological results may, notwithstanding the presence of a syphilitic infection, be negative in certain cases.
2. That a positive reaction in the absence of a clear history or of signs of syphilis should, if only to exclude all possibility of error, never be accepted until a test of at least one more specimen has afforded the same result.
3. That, except in the case of a few well defined pathological conditions, syphilis is indicated with a degree of probability which closely approaches certainty, when several tests performed according to different methods give a positive result.

The conference recommended also that the Danish State Serum Institute, acting as the central laboratory of the League of Nations Health Organization, undertake the distribution of samples of serum for comparative tests in different laboratories and that it test any other serum on request which it may receive, or distribute them for the purpose of comparative retesting; also that this laboratory arrange an exchange of extracts, thus initiating a coordination of work which may be further developed in due time. A full report on the conference may be had from the World Peace Foundation, 40 Mount Vernon Street, Boston.

Society News.—Dr. Clare F. N. Schram, Beloit, Wis., was elected president of the American Association of Industrial Physicians and Surgeons at the annual meeting in Detroit. ——Dr. Thomas McCrae, Philadelphia, has been elected president of the Association of American Physicians for the ensuing year; Dr. Rufus I. Cole, New York, vice president, and Dr. James H. Means, Massachusetts General Hospital, Boston, secretary. The next annual meeting will be at Atlantic City, May 6-7, 1930.——The American Chemical Society will award the Joseph Priestley Medal to Mr. Francis P. Garvan, New York, at its meeting in Massachusetts in September.——The International Society for the Investigation of Sex will hold its second meeting at the British Medical Association, Tavistock Square, London, August 3-9, 1930. Arrangements are in the hands of Prof. F. A. E. Crew, The University, West Mains Road, Edinburgh.——The annual meeting of the American Heart Association, July 9, Portland, Ore., will be addressed, among others, by Drs. Eugene S. Kilgore, San Francisco, on the nervous heart, and Joseph H. Cannon, Charleston, S. C., on syphilitic occlusion of the coronaries; Dr. Robert L. Benson, Portland, Ore., will exhibit specimens of rupture of the heart due to cardiac syphilis.——The Alpha Omega Alpha banquet noted in THE JOURNAL, June 8, p. 1946, to be given on Thursday during the meeting of the American Medical Association in Portland, Ore., will be addressed by Dr. William Sydney Thayer, President of the Association, on "Reminiscences of Osler."——The presidential address before the Association of American Teachers of the Diseases of Children will be delivered by Dr. Paul W. Emerson, Boston, at the University Club, Portland, Tuesday morning, July 9, on "An Innovation in the Teaching of Pediatrics at Harvard Medical School."

Medical Bills in Congress.—S. Res. 79, authorizing the Senate Commerce Committee, or a subcommittee thereof, to investigate the means whereby the federal government may aid in discovering a cure for cancer, has been passed by the Senate. H. R. 2378, introduced by Representative Crail, California, proposes to amend the World War Veterans' Act so as to create a presumption of service origin when certain diseases occurred within seven years after the discharge of the service man. H. R. 3089, introduced by Representative Langley, Kentucky, proposes to extend the benefits of pension laws to contract surgeons who served honorably for not less than ninety days during the Spanish War, the Philippine insurrection, or the China relief expedition. H. R. 3382, introduced by Representative Rogers, Massachusetts, proposes to amend the World War Veterans' Act by repealing the sections of the act that provide that no compensation shall be payable for death or disability which does not occur prior to or within one year after discharge or resignation nor unless a claim be filed within five years after discharge or resignation, in case of disability, or within five years after death is officially recorded in the department. H. R. 3383, introduced by Representative Rogers, Massachusetts, proposes to authorize the Director of the Veterans' Bureau to purchase radium for the treatment of veterans. H. R. 3385, introduced by Representative Rogers, Massachusetts, proposes to amend the World War Veterans' Act so as to bring within its purview retired members of the Army, Navy or Marine Corps. H. R. 3394, introduced by Representative Fish, New York, proposes to amend the Immigration Act by providing for the deportation of an alien convicted of violating any statute of the United States taxing, prohibiting or regulating the use of narcotics. H. R. 3397, introduced by Representative Hughes, West Virginia, proposes to amend the World War Veterans' Act by extending from Jan. 1, 1925, to Jan. 1, 1932, the period within which if certain diseases develop they shall be presumed to be of service origin. H. R. 3400, introduced by Representative McSwain, South Carolina, proposes to provide for the retirement of disabled nurses of the Army and Navy. H. R. 3601, introduced by Representative Fish, New York, proposes to amend the World War Veterans' Act by providing that veterans hospitalized under its provisions shall be paid a hospital allowance in addition to other benefits at the rate of $8 per month during the period of hospitalization. S. Con. Res. 14, introduced by Senator Copeland, New York, proposes to request the Secretary of the Navy to detail a navy medical officer for duty as physician to the Senate and House of Representatives. H. R. 3574, introduced by Representative Hudspeth, Texas, proposes to amend the Emergency Officers' Retirement Act by providing specifically for the retirement of emergency officers whose disability is due to arrested tuberculosis. H. R. 3824, introduced by Representative Sproul, Kansas, proposes to amend the National Prohibition Act, as it applies to the District of Columbia, by requiring that containers of medicinal liquor bear a printed label, subscribed by the prescribing physician and countersigned by the pharmacist filling

the prescription, showing the date of issue, amount prescribed, to whom issued, the ailment for which the liquor is to be used, and the directions for its use. This label must apparently be filled out by the physician when he writes his prescription, on blanks furnished by the Commissioner of Prohibition. H. R. 3869, introduced by Representative McSwain, South Carolina, proposes to authorize an appropriation of not exceeding $300,000 to acquire additional land for the Walter Reed General Hospital.

Rockefeller Boards Have Paid Out $225,000,000.—At the beginning of the year, a plan became effective whereby the four Rockefeller boards (General Education Board, Rockefeller Foundation, Laura Spelman Rockefeller Memorial and International Education Board) united on a more definite cooperative plan. With that in view a reorganization was accomplished merging the Rockefeller Foundation with the Laura Spelman Rockefeller Memorial and extending the scope of the new foundation's activities to include not only public health but the advancement of knowledge in the medical, natural and social sciences and in the humanities. Two large boards emerge from the reorganization: the General Education Board, which limits expenditures to the United States, and the Rockefeller Foundation. Since their foundation, the four Rockefeller boards have distributed not only all of their income but about $225,000,000 of capital funds. The new Rockefeller Foundation has a book value of more than $203,000,000 with outstanding obligations of $35,000,000. The Rockefeller Foundation has since 1913 emphasized the training of physicians, health officers and nurses, the creation or strengthening of medical schools, the building up of official health organizations, the promotion of field research and the demonstration of new methods. In his annual report, George E. Vincent, Ph.D., the president, summarizes the work during the last calendar year:

During 1928, in disbursing from income and capital $21,690,738, the foundation engaged in the following activities: (1) contributed to the development of medical sciences through provision of funds for land, building, operation or endowment for eighteen medical schools in fourteen countries; (2) provided for the support of the Peking Union Medical College; (3) made minor appropriaticns for improving premedical instruction in China and Siam, for operating expenses of seventeen hospitals in China, and for laboratory supplies, equipment and literature for European medical centers which are still feeling the after-effects of the war; (4) through small grants assisted certain departments of medical schools in France, Italy and Ireland which offer exceptional facilities for graduate study; (5) continued to contribute toward the advancement of the biological sciences in institutions in four countries; (6) assisted the development of professional public health training in eight schools and institutes in seven countries and in twelve field training stations in the United States and abroad; (7) gave aid to fifteen nurse training schools in ten countries; (8) helped Brazil to combat a new outbreak of yellow fever; (9) continued studies of that disease on the West Coast of Africa; (10) took part in malaria control demonstrations or surveys in six of the American states and in eighteen foreign countries; (11) continued contributions toward the emergency budgets of eighty-five county health organizations in seven states of the Mississippi flood area; (12) aided the governments of twenty-one countries in fighting hookworm disease; (13) gave funds to organized rural health services in 191 counties in the United States and toward state supervision of such services in fourteen states in that country, and aided in local health work in twenty-three foreign countries; (14) assisted in the establishment or maintenance of certain essential divisions in the national health services of twenty-three foreign countries and in the state health departments of nineteen American states; (15) provided, directly or indirectly, fellowships for 802 men and women from forty-six different countries, paid the traveling expenses of sixty-one officials or professors making study visits in the United States or abroad and provided similar opportunities for 127 nurses and other public health workers; (16) contributed to the work of the Health Organization of the League of Nations through the support of international interchanges of public health personnel and the development of a world-wide service of epidemiologic intelligence and public health statistics; (17) lent staff members as consultants to many foreign governments; (18) made surveys of health conditions or of medical or nursing education in five countries; (19) collaborated with the Rockefeller Institute in field studies of respiratory diseases and verruga peruana; (20) assisted in mental hygiene projects in the United States and Canada, in demonstrations in dispensary development, research and teaching in hospitals and clinics in New York City, and in numerous other undertakings in public health, medical education and allied fields.

FOREIGN

British Medical Association Meeting, July 19.—The annual meeting of the British Medical Association will begin, July 19, at Manchester, under the presidency of Dr. Arthur H. Burgess, professor of clinical surgery. The *British Medical Journal* states that the number of members in the association increased during the year by 933. New additions to the Association House will be formally opened in the fall; the wings will be known as Tavistock House North and Tavistock House South. The past president, who is an officer for one year after the termination of his presidency, has been presented with a badge by Sir Arthur McEwan which the past president may wear on suitable occasions. The report on encroachments on the sphere of private practice states that the representative body views with concern the insidious inroads continuously being made on private medical practice under the auspices of the state, voluntary bodies and others. The representative body believes this is detrimental to the interests not only of the profession but ultimately of all classes in the community. The report says that: (1) the function of the health authority should be confined as much as possible to the prevention of disease; (2) the work of the whole-time officer should be confined to administration, inspection and institutional or consultative work; (3) health visitors and nurses should be definitely responsible to a local practitioner for patients dealt with by them, including expectant mothers. That voluntary hospitals are formidable agencies of encroachment on the sphere of private practice was noted by the British Medical Association as far back as 1908. Then the voluntary hospitals were really charitable institutions existing for the treatment of the sick poor; they now cater to the treatment of the sick, and this increase of scope, which is welcomed by the medical profession, if properly safeguarded, makes the hospitals potentially more dangerous as agents of encroachment on private practice. It is the duty of the medical profession to teach the public why it is wrong and uneconomic to use them for purposes which can be better served by private practitioners. The subject of encroachments is discussed at length in this report.

Government Services

New Veterans' Hospitals

Three new hospitals have recently been placed in operation by the veterans' bureau: the Tucson, Ariz., Hospital, which has 261 beds and takes the place of the old hospital in that city, and the new Portland, Ore., Hospital, which has 313 beds, and made possible the closing of the old hospital at Portland, and also the hospital at Tacoma, Wash., which has been returned to the Indian Service. The third new hospital is a fifty-seven bed institution at Fargo, N. D., to be operated in conjunction with the regional office. It will be a clearing house for cases requiring hospitalization in larger institutions and at the same time will make possible the caring for a small number of patients from North Dakota.

Summer Training for Medical Officers

The army medical department has completed arrangements for training camps for medical reserve officers and students this summer at Carlisle Barracks, Pennsylvania; Fort Oglethorpe, Georgia; Fort Snelling, Minnesota; Fort Sam Houston, Texas, and Fort Lewis, Washington. It is expected that 2,100 reserve officers and about 1,000 students will attend. Last summer 2,073 medical officers attended these camps. The courses in basic field instruction for officers will be given, June 16-29; the courses for officers who are members of a medicomilitary field unit, such as a medical regiment, or detachment or squadron, July 7-20, and the courses for officers whose assignments require special knowledge, July 7-20. There are now twenty-four units of the reserve officers' training corps in medical schools, eight in dental schools and four in veterinary schools.

Army Personals

Lieut. Charles W. Williams has resigned from the service. ——Capt. Charles R. Glenn has been assigned to Langley Field, Virginia, for duty.——Lieut. Col. Herbert C. Gibner has been assigned to the Army War College, Washington, D. C., as an instructor.——Capt. Bartlett L. Shellhorn has been assigned to Watertown Arsenal, Massachusetts, for duty.——Major Condon C. McCornack has been assigned to the first medical regiment, Carlisle Barracks, Pennsylvania, for duty.——Major Carl H. Witherell was directed to sail, about February. 21, for Porto Rico to rejoin his station following a period of observation and treatment at the Walter Reed General Hospital.——Lieut. Henry B. Lavery sailed, about April 2, from New York for the Hawaiian Department for duty.——Major Edgar F. Haines has been relieved from duty at the army dispensary in Boston and assigned to the Army War College, Washington, D. C.——Lieut. Horace P. Marvin has been ordered to the Fitzsimons General Hospital, Denver, for duty.——On completion of their foreign service tour, Major LeRoy T. Howard will proceed to the Fitzsimons General Hospital for duty; Major Bertram F. Duckwall to Fort Sam Houston, Texas; Major William T. Weissinger to Fort Jay, New York, and Major Albro L. Parsons, Jr., to Walter Reed General Hospital, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 25, 1929.

Mental Deficiency

The report of the mental deficiency committee, being a joint committee of the board of education and board of control (for lunacy), covers a wide ground. A special investigation by Dr. E. O. Lewis, carried on during more than three years, has been made the basis of many of the conclusions and recommendations. "It is sometimes held" says the report, "that the only criterion of mental defect for the purpose of these definitions is the educational one. In the light of all the other definitions contained in the mental deficiency acts and of the best scientific opinion, we have taken the view that, whatever may be the correct legal interpretation of these definitions, the real criterion of mental deficiency is a social one, and that a mental defective individual, whether child or adult, is one who by reason of incomplete mental development is incapable of independent social adaptation." The total number of children between the ages of 7 and 16 mentally defective within the meaning of the education act of 1921 is approximately 105,000. The number of lower grade defective children, i. e., imbeciles and idiots, under 16 years of age on the basis of the investigation is at least 30,000. The committee is, however, convinced that this figure is an underestimate, because the data pertaining to younger children were necessarily incomplete. The total number of adult defectives of all grades in the whole country is certainly not less than 150,000. Of the 105,000 children, it is estimated that about one third, or 35,000, are educationally rather than socially defective, while the remaining two thirds, that is 70,000, are mentally defective within the meaning of the mental deficiency acts. If to this figure (70,000) are added the 30,000 lower grade defective children and the 150,000 adult defectives, the total number of persons of all ages in England and Wales, mentally defective in the true sense, incapable of independent social adaptation, is 250,000. This number, which is based directly on the actual numbers ascertained in the investigation, is an underestimate, and after allowing for the inevitable incompleteness of the ascertainment and the making of certain corrections, it is estimated that the total number is at least 300,000, which is equivalent to an incidence of mental defect of 8 per thousand of total population. This number (300,000) does not include the 35,000 children whose defect is educational rather than social.

Among other recommendations the committee makes the following: All children hitherto known as educable mentally defective children and all those known as dull or backward children should be regarded as a single educational and administrative unit, and should be given a similar type of education adapted to their degree of retardation. This unit should be known as the "retarded" group. The local education authority should be consulted in all cases of children or young offenders brought before a court under conditions rendering them liable to be sent to a reformatory or an industrial school, and such children should be subjected to a special medical and psychologic examination.

The Colonial Medical Service

Reviewing five years of colonial administration in the house of commons, Mr. Amery, secretary of state for the colonies, said that the colonial office was a ministry of health for the tropical world. There had been a great stir on the face of the waters throughout the colonial empire. In every direction, governors and administrators had shown great enthusiasm, often splendidly supported by their wives, in the matter of child welfare and maternity, and in improving health conditions. Today the great hospitals on the Gold Coast and at Singapore were unrivaled in any way in the tropical world. Ceylon had 100 hospitals and something like 8,000 beds. Malaya had twenty-five traveling motor dispensaries and two motor boats which, in a year, treated 150,000 cases. There was a medical college at Singapore, an institution calculated to be of immense importance to the whole of the eastern colonies, and it was hoped shortly to establish something of the same sort in West Africa. In many of these researches they were greatly indebted to the Rockefeller Foundation for assistance. Not the least important was the training of native medical staffs and they hoped to increase that work, which had grown remarkably in the last few years all over West Africa, and to build up an even higher medical training of the natives so as to enable them to qualify for the treatment of cases. No less essential than that was education in questions of hygiene of the whole bulk of the population.

Medical Training for Natives

Renewed interest in the proposals for providing medical training for natives has been aroused by discussion of the subject at the National European-Bantu Conference at Capetown. The establishment of a government native medical service was suggested by a commission, appointed early in 1928, to inquire into the training of natives in medicine and public health. The conference passed resolutions in support of the recommendation of this commission. The commission proposed that extensions be made to the University of the Witwatersrand to include a non-European section for the training of native physicians at a cost of $250,000. The university authorities at Capetown and Johannesburg were consulted about this matter before the commission drew up its report. Both universities expressed their readiness to make proper provision for the suggested new section, provided separate teaching arrangements were planned and the government supplied the money. The recommendations approved by the European-Bantu conference were that facilities be provided in South Africa for a full university medical course for non-Europeans; that loans be made available for the assistance of deserving native medical students, and that until the time when adequate facilities existed in South Africa, a system of bursaries and loans be instituted to enable native medical students to go overseas. It has been stated that the native population could absorb at least 900 physicians, assuming that there was one physician available for every 5,000 natives. In the native reserves it is not uncommon to find only one medical man to attend to the needs of from 20,000 to 40,000 natives. Some years ago a number of natives who had passed a certain educational standard were apprenticed for three years as hospital orderlies, and given instruction in the elements of anatomy, chemistry, physiology and the nature and prevention of diseases. They were also given practical training as male nurses and in first-aid and ambulance work.

London's Insanitary Refuse Dumps

The *British Medical Journal* animadverts on the report of Mr. J. C. Dawes to the ministry of health on the public cleansing service of London as "a revelation of sanitary failure such as in these times we are little prepared to receive. Perhaps the most startling revelations concern the festering masses of muck which have been permitted to grow into gigantic heaps along the banks of the lower Thames. These heaps arise from the indefensible and unhygienic practice of dumping the crude refuse of London on the river bank." Mr. Dawes found that these are extensive fly-feeding belts, and that the amount of rat infestation was great. It seems incredible, says the *British Medical Journal*, "that such things should be within the area of Greater London, and that the outward drive of its expanding population should carry the homes of its working people into a vortex of such foulness as surely never before in the history

of the world has been permitted to accumulate. It is a strange reflection that there exists, apparently, no public authority whose duty it is, and whose powers are competent, to prevent or remedy the evils of these vast dumps." After receiving the report, the minister of health appointed a committee for its consideration.

Asthma Research

The formation of the Asthma Research Council, at the instigation of sufferers from the disease, has been reported in previous letters. The following progress is now reported. At Guy's Hospital a team, including a clinician, biochemist, bacteriologist, immunologist, rhinologist, psychologist and radiologist, is at work. Patients are being submitted to exhaustive investigation which has already disclosed a constant deficiency of certain elements in the blood, the correlation of which it is hoped may relieve or even cure the condition. Equally promising is the work at the Great Ormond Street Hospital for Sick Children, where asthma is being attacked at its simplest and most curable stage. The association of asthma with cyclic vomiting, epilepsy, migraine and skin disease is being investigated. At the London Clinic physical methods of treatment, including medicated inhalations, ultraviolet irradiation, diathermy and breathing exercises, are being investigated. It is proposed to appoint a research worker at King's College to study the experimental production of asthma and the effect of drugs that relieve. At Brompton Hospital, arrangements are being made to investigate the relation to general respiratory diseases. A grant is being made to the London Hospital to examine the effects of roentgen therapy, of which encouraging reports have been made. So keen is the national desire to forward this work that a number of institutions in the provinces have agreed to provide research facilities as soon as the necessary funds permit. A feature of the campaign is the appeal to asthmatic patients to cooperate. All sufferers and the parents of all children suffering from asthma in Great Britain and the dominions are invited to assist not only by subscribing but by filling in family history forms which, it is hoped, will give valuable information as to the influence of heredity. A report of progress will be published annually. The estimated cost of the campaign is $250,000.

PARIS

(From Our Regular Correspondent)

May 15, 1929.

The Dearth of Colonial Physicians

All the governments accept, with one accord, the great importance of the part played by the physician in the general work of colonization. He alone preserves not only the health of the European colonists but also the lives of the natives, the victims of numerous regional infections that they do not know how to combat. But for the physician the man power that is indispensable for the development of the colonies would be decimated. On the physician falls the duty of establishing hospitals, sanitary stations, vaccination centers, and the like. It is a well recognized fact that a colony is more likely to dwindle down and die out if there is a scarcity of physicians. However, in spite of the many advantages offered to practitioners who consent to enter on this toilsome and dangerous career, such as high salary, frequent leaves of absence and an excellent pension after twenty-five years of service, the candidates are not sufficiently numerous to satisfy the needs of the immense French colonial empire. The home country has a plethora of physicians: 24,000 for a population of 40,000,000, or one for each 1,700 inhabitants. But there is a dearth of physicians in the colonies: about 600 for a native population of 50,000,000. There are, in addition, 321 physicians serving with the colonial troops; but their time is too much taken up by their army duties to permit them to lend more than occasional aid to their civil colleagues in the larger centers of population. The small isolated stations in the more remote districts, which are in the midst of an almost exclusive native population and which are the most needed, are manned by a single European physician and one or two native men nurses. Even in Algeria, lying, as it does, so close to France, there are only 679 physicians for 6,000,000 inhabitants. Of these, 656 are in the north, where the cities are, and only twenty-three are located in the immense southern portion of the country. There are only 143 physicians for the 4,000,000 natives of Morocco. In French West Africa there are 156 physicians for the 13,000,000 inhabitants scattered over a territory as large as that of Europe. French Equatorial Africa, which is four times the size of France, has only about thirty physicians to combat the scourges that threaten to depopulate the country, which is, however, so prolific that some villages have increased in five years from 1,000 to 8,000 inhabitants. Madagascar has only forty physicians, and Indo-China, a flourishing country, has but 111 physicians for 20,000,000 inhabitants. It is true that medical schools for the natives have been created, which have supplied 189 Anamese physicians and a total of 300 native physicians for the remaining colonies. Of late, the minister of the colonies has been seeking to recruit physicians for the colonies from the Polish, Roumanian, Russian, Czechoslovakian and Jugoslavian students and physicians, of which there are great numbers in France and who are, for the most part, barely able to exist, while they embarrass their French confrères who naturally desire to retain their clientele. Special facilities have been offered them to carry on their special studies and to obtain their diplomas, with the understanding that they accept posts in the colonies and do not practice in France. But, unfortunately, the foreigners mentioned prefer to practice in France, and that is what the French medical syndicates naturally seek to oppose.

The Mouse as a Carrier of Disease-Provoking Organisms

The rôle of the rat in the dissemination of several grave infections is well established. Addressing the Academy of Medicine recently, M. Palier called attention to the similar rôle played by the mouse, of which much less is said. He has recently made a number of bacteriologic researches on the subject and has reached the conclusion that the mouse, which is such a common pest in the homes, both in the cities and in the rural sections, is a redoubtable agent in the dissemination of the pneumococcus and the colon bacillus, just as is the anopheles mosquito in the spread of malaria. Furthermore, the pneumococcus, in passing through the mouse, acquires a higher virulence, although the animal itself does not appear to suffer much from it. It is through the intermediation of lice that the mouse transmits the germs of disease to man. The mouse has long been known as an agent in the dissemination of the streptococcus, but it rapidly succumbs to infection with this organism. M. Pailer emphasized that the destruction of mice by all means possible is a work of paramount hygienic importance, just as is the destruction of rats in the sewers, in the harbor cities and on the ships.

A European Tour of American Physicians

Preparations are under way for the reception of the Interstate Postgraduate Assembly of North America, the representatives of which will arrive in Paris, June 29, and will remain until July 2. The council of the association for the development of medical relations with foreign countries (A. D. R. M.), the seat of which is at the Faculté de médecine de Paris, and which is presided over by Professor Hartmann, is preparing the entertainment program for our American guests. For their benefit, a special brochure in English is being printed, which will give a complete survey of medical instruction in France.

ITALY

(From Our Regular Correspondent)

April 15, 1929.

Congress of Obstetrics and Gynecology

The twenty-seventh National Congress of Obstetrics and Gynecology was held in Rome in the Great Hall of the Clinica ostetrica, at the policlinic. It was presided over by Professor Pestalozza, senator, a clinician of Rome.

RADIOTHERAPY IN GYNECOLOGY, AS AT PRESENT APPLIED

The first topic on the program, "Radiotherapy in Gynecology, as at Present Applied," was presented by Prof. Michele Bolaffio of Modena, who treated the subject under several heads:

1. Treatment of menstrual disturbances and functional disorders. While the anatomic types show benefit solely from an intense local treatment with radium or roentgen rays, the functional types are improved by mild therapy, local or at a distance. In mild menorrhagia of puberty, a light irradiation of the ovary, or the irradiation of the hypophysis, the thyroid or the spleen may suffice. In Schroeder's hemorrhagic metropathy, one must resort either to curettage of the endometrium or to application of radium in the uterine cavity, in doses not to exceed 500 milligram hours. In preclimacteric menorrhagia and in the menopause, control by means of roentgen rays is indicated. Radiotherapy is very useful in hemorrhage due to adnexitis and to uterine displacement, as well as in all the forms of endocrine origin and those due to ovarian insufficiency. Also menstrual disturbances of a defective character benefit from radiotherapy in stimulative doses, even though an amenorrhea may be present, provided it has not existed more than three years.

2. Therapy of fibromyomas. The irradiation may be given in fractioned doses in several sittings or at one sitting; the results are the same; but, whereas the former may be interrupted before the regulating effect on the menstruation is attained, the latter produces always a complete cessation of menstruation, whether it is permanent or not. Combined treatment (radium and roentgen rays) is not feasible. There are various contraindications to radiotherapy, as regards the intervention not only with radium but also with roentgen rays.

3. Therapy of inflammatory disorders. In tuberculous conditions of the uterus, the adnexa and the peritoneum, only treatment with very small doses is harmless and gives good results. Acute septic inflammations are more easily influenced. Gonococcal lesions are not very easily affected by radiotherapy; verrucous condylomas retrogress rapidly with moderate doses.

4. Therapy of malignant growths of the female genitalia. The combination of surgical treatment and radium therapy is effective in cases of carcinoma of the vulva. In cancer of the vagina and the neck of the uterus, the combination of radium and roentgen rays has been found to be the best. In carcinoma of the body of the uterus, the statistics show that surgical treatment and radium treatment are of equal value. Professor Bolaffio favors postoperative irradiation in cases of incomplete operation. Many further communications on the subject were presented.

In the discussion that followed, Professor Cova of Palermo emphasized the advantages of the surgical treatment of fibromyomas and pointed out the numerous contraindications to radiotherapy. Professor Bignami of Cremona reported his results in a series of 300 cases of irradiated fibromyomas, and emphasized that radiotherapy is preferable to surgical treatment. Professor Alfieri, director of the Clinica di Milano, expressed the view that all uterine fibromas may be treated surgically, except for a few contraindications of a general nature. He had observed a better state of well being in patients operated on surgically than in those treated by irradiation. The speaker referred also to the fight against ovarian cancer, which often comes to the surgeon too late; he emphasized the need of operating on an ovarian tumor, even though it is small.

TUBERCULOSIS AND PREGNANCY

The official communication on the second topic, "Tuberculosis and Pregnancy," was presented by Prof. Carlo Vercesi of the University of Sassari. The speaker discussed the influence of tuberculosis on pregnancy, pointing out that tuberculosis will compromise the normal evolution of pregnancy in about two fifths of the cases, with greater gravity in extrapulmonary localizations. The birth does not present special characteristics, even if the tuberculous processes are very active and diffuse; the same is true of the puerperium. With regard to the influence of pregnancy on tuberculosis, while there is some difference of opinion, it must be admitted that often there is an aggravation or flaring up of tuberculous processes in association with pregnancy. However, the interruption of pregnancy is not an effective therapeutic measure. The birth constitutes often the determining cause of the aggravation, which becomes more conspicuous during the puerperium. Speaking of the influence of tuberculosis in the mother on the fetus, Professor Vercesi, after discussing the various modes of transmission, concluded that in children of tuberculous parents the most decisive contagion is postnatal. The speaker explained also certain general therapeutic indications that should be followed in the association of tuberculosis and pregnancy, and stated that prophylactic vaccination, extended (in some sections) to all the new-born, while still in the experimental stage, merits some confidence.

Dr. Maurizio of Padua presented an important communication on the subject under discussion, speaking of the relations between tuberculosis of the larynx and pregnancy. In a series of 668 collected cases, 90 per cent of the patients died; of the fetuses, 65 per cent died soon after birth and a further 20 per cent in the first months of life. Only 15 per cent survived to the end of the first year of life. Therapeutic abortion effected an improvement in 80 per cent of the cases.

Professor Santi of Trieste reported on 300 cases of pulmonary tuberculosis associated with pregnancy, and drew the deduction that, in view of the high mortality of children of tuberculous parents, it is not advisable to permit gestation in the presence of tuberculosis. He favors interruption of the pregnancy, followed by temporary sterilization with roentgen rays.

Further communications on the subject were presented by Professors Di Consoli, Revolsella, Micheli and others.

In the general discussion of the subject, Professor Morelli of Rome emphasized the importance of complete statistics in the crusade against tuberculosis and expressed regret that at present statistics are not sufficient. For instance, we do not know what percentage of children of tuberculous parents are alive in their twentieth year. The interruption of pregnancy should be decided on the merits of each individual case, and, if resorted to, should usually be carried out in the first three months.

Professor Frugoni emphasized the value of artificial pneumothorax in connection with tuberculosis of pregnancy.

Professor Alfieri of Milan recommended that every maternity hospital should have a special section for tuberculous expectant mothers, such as the Clinica di Milano has, owing to the efforts of the opera di Mangiagalli. He spoke also of the various indications for the interruption of pregnancy in tuberculosis.

Many other conventionists spoke on the subject, to all of whom Professor Vercesi replied.

Professors Lomonaco and D'Ormea gave an account of the activities, during the year, of the Opera nazionale per la protezione della maternità e dell'infanzia. Provisions were made within the country for expectant mothers now residing in foreign territory.

Milan was chosen as the meeting place for the next congress, the dates corresponding to the time set for the dedication of the monument to Mangiagalli. The main topics on the program are: (1) Gonorrhea in Woman; chief speaker, Professor Viana of Verona, and (2) The Reticulo-Endothelial System in the Fields of Obstetrics and Gynecology; chief speaker, Professor Spirito of Siena.

Death of Professor Perroncito

The death, at Pavia, of Prof. Aldo Perroncito, incumbent of the chair of general pathology at the University of Pavia, at the age of 46, is announced. Born at Turin in 1882, Perroncito was graduated at the University of Pavia, having prepared his thesis in the laboratory of his uncle Camillo Golgi. In 1921, he succeeded his uncle as director of the institute, which post he held up to his death. His scientific productions were many and important, and made his name known throughout the world. While still a student and working on his graduation thesis, he demonstrated the fibril running through the end-plates of the striated muscles. This discovery is the anatomic basis of the theory of the double innervation of the striated muscles. The changes that occur in the nerve fibers at the beginning of the regenerative process, to which he devoted special study, are now designated as the Perroncito phenomenon. He established also certain fundamental laws of the still obscure phenomenon of the isotoxicity of the blood. He conducted experiments on the variations of the osmotic pressure in living cellular elements, and carried out important studies on malaria. Studying, by the Golgi method, the spermatic cells of *Paludina vivipara*, he showed that the reticular apparatus of the cells that are preparing to divide presents a series of characteristic changes similar to those of the nucleus during karyokinesis. This fact, amply confirmed later, is now known by the term "dittokinesis." A series of researches, completed during the period of the directorship of the Istituto di patologia in Cagliari, deals with the blood platelets.

The principal researches of the last period of Perroncito's life were on the liver. By anastomosis of the portal vein and the vena cava he succeeded in isolating the liver from the circulation, and then, by a special technic, in removing the whole organ. On animals deprived of the liver he made important observations. His studies were in full progress when death overtook him.

AUSTRALIA

(From Our Regular Correspondent)

May 11, 1929.

The Australian Institute of Anatomy

The commonwealth of Australia is the custodian, for the world, of an almost unique fauna. Particularly is Australia unique in regard to the marsupials, some of which, such as the kangaroo, the wallaby and the koala ("native bear"), are found nowhere else but on this continent. It is fitting, therefore, that the comparative anatomist should seize the unequaled but diminishing opportunity of studying these mammalian curiosities, for there is no doubt that the marsupial, like the Australian aboriginal, is disappearing. Both are difficult of domestication. Already the Tasmanian aboriginal has vanished, leaving behind a few skeletons. Since the position regarding the marsupials was realized, about twenty years ago, efforts have been made to study and preserve the species. Large tracts of suitable virgin country, such as Wilson's Promontory in Victoria, have been set aside as sanctuaries for native fauna. Although not receiving the recognition and encouragement it deserves, enthusiastic anatomists, chief among whom is Dr. Colin Mackenzie, have done valuable work by an extensive study of the mammals and reptiles of Australia.

Since the foundation of the national capital at Canberra, plans have been prepared for the Australian Institute of Anatomy, the erection of which is estimated to cost £100,000. The buildings will cover an area of 44,450 square feet and will be erected on a site of 8 acres. Dr. Colin Mackenzie has been appointed director of the institute. This appointment has been universally approved. Associated with the institute will be a reservation of 80 acres occupying a peninsula of the Molongolo River, where members of the unique Australian fauna will be studied in their natural state.

Canberra is destined to become the anatomic center of the Pacific, and from the point of view of specimens the Australian Institute of Anatomy will, in the future, rank second only to the Hunterian Museum of the Royal College of Surgeons in London. Dr. Colin Mackenzie has donated his complete anatomic museum, consisting of hundreds of macroscopic specimens and thousands of microscopic preparations. Other notable gifts include the Horne-Bowle collection of aboriginal stone implements, the Murray Black collections, and valuable specimens from Messrs. Otway Falkiner and E. Hill. Mr. Harry Burrell of Sydney has presented to the institute his unrivaled collection of specimens dealing with the life history of the platypus. The present value of the collections is estimated at £100,000, and, at the present rate of accessions, in a few years, they may be worth £250,000.

Facilities for study will be offered not only to research workers in this country but to those from oversea. The institute will afford exceptional opportunities for studying human embryology from the functional point of view. Already, considerable work of great practical value has been done with regard to uterine suppo[illegible], to the anatomic relationships of the ureter and genital ducts, and to the comparative anatomy of the mandible, the central nervous system, the colon, the greater omentum, the lesser sac and the vermiform appendix. The marsupials offer an excellent field for the study of the muscular epochs, and the postural changes resulting.

Review of Medical Education in Australia

That the premedical general cultural education of medical students is unsatisfactory, that the selection of medical students, involving an entrance examination prior to commencing the medical course is essential, and that there is grave danger of immaturity as a result of medical education under present conditions, were the main criticisms of medical education in Australia made by Prof. R. J. A. Berry, dean of the faculty of medicine at the University of Melbourne, in a report submitted to the premier of Victoria. Professor Berry, in the course of a recent tour of America, England and Europe, was more impressed with the American methods of education than he was with that of the English. "Medical administration, both in the United States and in Canada," he said, "commands one's whole-hearted admiration, and I regard it as the finest I have ever seen or studied anywhere."

Professor Berry's views have received considerable endorsement by leading members of the medical profession in Australia. "It is possible," said one of the professor's supporters, "to divide medical training into three essential phases—a preuniversity course, a university course, and a postuniversity course. At present in Australia we are concentrating mainly on the middle phase, and insufficient attention is being paid to the preuniversity and postuniversity periods."

The minister of health for Victoria (Dr. Argyle) tends to be opposed to Professor Berry's view that the standard of entrance for the medical course is too low. The present standard is that of matriculation.

Professor Berry finds fault with the administration of the university council (which he describes as a "nonmedical body of elderly men"). He criticizes the reviewing of proposals of authorities on medical education by a lay board, and asks for increased powers of spending the money allotted to the faculty of medicine. The university council, in spite of the epithets hurled at it, is quite sympathetic with the proposals of the dean of the faculty. Much good will undoubtedly come of the report.

The Alcohol Research Council

Having for its object an impartial and strictly scientific inquiry into the alcohol question, the Alcohol Research Council was formed in Sydney, May 1. The objects of the council are to find the truth concerning the relation of alcohol to human life, to enlist the services of the best authorities possible for this purpose, and to make the conclusions of the council readily available.

The first investigation proposed has to do with the industrial possibilities of alcohol in Australia. Although this preliminary study relates chiefly to the commercial aspect, the council's main purpose is to investigate the social and physiologic effects of alcohol, and the rules for conducting these investigations set out that reports of results "shall not be couched in terms which advocate or oppose any scientific reform or existing condition." The president of the council is Mr. I. V. Newman (botanic research department of Sydney University); Dr. Arthur (minister for health in New South Wales) is the vice president, and Mr. E. R. Walker (lecturer on economics of the Sydney University) is the assistant director of research.

Increasing Toll of Life of the Motor

The figures showing the number of persons killed and injured each year in New South Wales reveal that a serious and deplorable state of affairs is rapidly developing. The figures do not show the actual number of motor accidents, but it is certain that these have terrible frequency. As in many accidents people suffer only minor injury or perhaps escape injury altogether, no reports are made. These figures are supplied by the New South Wales police department:

Fatalities and Injuries from Road Accidents in New South Wales

	City		Country		Total	
	Killed	Injured	Killed	Injured	Killed	Injured
1926.....	144	3,660	114	920	258	4,580
1927.....	161	4,443	112	1,117	273	5,560
1928.....	189	5,612	143	1,512	332	7,124

During the last three months there have been four deaths and 124 injured every week in the Sydney metropolitan district.

Traffic authorities believe that the primary causes of the increasing numbers of accidents are, first, the growing number of motor vehicles being placed on the road; second, the increasing population; third, the desire for speed, either as an exhilaration or because of the demands of modern life and business; and, fourth, the congestion of city streets.

Conversation with leading surgeons of the Sydney public hospitals elicits the information that fractures generally, and especially fractures of the femur, are definitely on the increase, whole wards of thirty beds being sometimes filled with the latter. A type of fracture that is becoming more common is that of the head of the femur becoming impacted into the acetabulum.

Consumption of Sugar in Australia

In view of the extraordinary advertising welfare that is being conducted in the United States between the sugar trade and the tobacco manufacturers, and into which medical men seem to have been drawn, it may be of interest to record that the consumption of sugar in Australia is decreasing. The sales of refined sugar for the past half year, according to the chairman of directors of the Colonial Sugar Refining Company, show that there has been no increase in the consumption corresponding with that of the population, which indicates that our people are eating less sugar. Possibly the modern craze for weight reduction may be a factor. Up to the present no special efforts by the sugar interests have been made to increase the sales of their product.

TURKEY

(From Our Regular Correspondent)

ANGORA, May 27, 1929.

A Tax on Bachelors

In the endeavor to ameliorate the economic and social conditions arising from the sparse population of the country (there are only 14 million inhabitants to an area of 762,736 square kilometers) the Turkish republic has for some years given attention to the question of population. Last March a bill was introduced into the great national assembly by Suleyman Sirry Bey, a deputy of Yozgad, to put a tax on bachelors. According to the bill, all nonmarried men between the ages of 25 and 45 will be required to pay double the taxes on income, road construction, land and real estate. Women between the same ages who are gainfully employed, even if they are divorced or widowed, will also be required to pay this tax. Only disabled women or women students will be exempt. Twenty per cent of the income derived from the tax will be given to families with more than five children. The bill is at present under consideration by the board of finance and by consulting experts from the ministries of hygiene, the interior, finance and national economy. The ministry of hygiene believes that if this bill were introduced with the intention of increasing the birth rate it would be more effective to increase the efficiency of the department of social welfare than to tax bachelors. Among the urban population bachelors are found chiefly among the intellectuals, the high cost of living being considered the chief cause for postponement of marriage. Owing to the custom of early marriage, bachelors are rare in rural communities. The statistics in connection with the marriage rate are not yet complete, but in any case the marriage rate does not seem to be behind that of other countries. In general, there is a high birth rate.

As the majority of the deputies are not in favor of the tax, it is generally expected that the bill will be rejected to make way for another bill concerning measures for the saving of child life. In view of the high cost of living, a tax on bachelors would not have the general approval of the public.

Visit to the United States by the Minister of Hygiene

Following an invitation from the Rockefeller Foundation, Prof. Dr. Refik Bey, minister of hygiene and social assistance, and Dr. Assim Bey, director of the division of hygiene, are traveling in the United States. They will be there for about two months, visiting different health departments and becoming acquainted with the leading institutions and organizations concerned with public health and hygiene, schools of hygiene, hospitals, water supply plants and sewerage systems, bodies concerned with public health nursing, and the Red Cross.

Death of Nafiz Pasha

At the age of 91, the oldest Turkish physician, Professor Emeritus Dr. Nafiz Pasha died at his home in Constantinople. Pafiz Pasha was still well and active when a year ago the friendly medical society gave a party in his honor on the occasion of his ninetieth birthday. He was the oldest member and the oldest professor of the medical faculty, on which for twenty-five years he held the chair of general pathology.

Nafiz Pasha served as surgeon in the Russian-Turkish War of 1878 and in the Turkish-Greek War of 1896 and has been the recipient of high honors and numerous medals. As field marshal he retired from army service in 1901 and since then has been engaged in private practice. Having once been of great renown, Nafiz Pasha was still called on as consultant in difficult cases. He was the author of the first Turkish textbook on general pathology.

On the occasion of the funeral, the medical school remained closed. The whole teaching staff, the minister of hygiene and social assistance and all medical students were present.

Besides Nafiz Pasha there has only been one other physician who attained the rank of field marshal: Professor Dr. Djemil Pasha, who was a great surgeon as well as a great organizer and to whom belongs the credit of having revolutionized the surgical procedures of the medical school. Djemil Pasha later became mayor of the city of Constantinople.

Mumps

Epidemics of mumps occurred in different cities during March and April. Especially in Constantinople, Smyrna and Angora the primary schools had to be closed for some weeks on account of the epidemic, which, however, was light. No fatalities were noted. As mumps is not yet a reportable disease, the exact number of cases is not known. Lectures on the prevention and spread of mumps have been given to teachers and students. By the end of May the epidemic was over. In some schools from 20 to 25 per cent of the students were affected. In certain parts of the country and in the army, mumps occurs from time to time in sporadic form. The disease was widespread among the army during the Balkan and World wars.

BELGIUM

(From Our Regular Correspondent)

April 15, 1929.

Death of Auguste Swaen

The death of M. Auguste Swaen, emeritus professor and former rector of the University of Liége, and a member of the Royal Academy of Medicine of Belgium, is announced. For half a century he gave instruction in anatomy and histology at the Faculté de médecine de Liége, which he elucidated in the same manner as Van Beneden, Spring, Frédéricq and Masius. He became, in turn, the teacher of such men as Brachet, Duesberg and H. De Winiwarteret, who will recall, with feelings of emotion, the many fruitful hours of labor spent at his institute. The remarkable collections brought together as the result of his initiative and in accordance with his directions furnish tangible evidence of his activity. The University of Liége will long preserve the memory of this great scientist and teacher. In his honor, the institute of anatomy has been rechristened the Auguste Swaen Institute.

The Red Cross Society

The central services of the Red Cross Society comprise four distinct units: (1) medicosurgical institute; (2) central auto-ambulance service; (3) store for first-aid equipment, and (4) sanitary center (the A. Depage Foundation).

In ordinary times, each of these services has its regular duties to perform. The coordination of the various managements of these services is assured by the general management.

The Red Cross Society must, at all times, have a hospital available for its interventions in case of accidents, catastrophes, calamities or epidemics. Furthermore, it is obliged by its war program to have a number of auxiliary hospitals ready for use on short notice. The Red Cross must likewise have, subject to call at any time, sufficient nursing personnel and ambulance personnel to enable it to put its plans into immediate action. It was for the attainment of these purposes that it organized its central medicosurgical institute. This institute comprises 105 beds distributed in wards and separate rooms. In case of war or other calamity, 200 beds can be installed in the wards and halls. The institute is at the disposal of all physicians and surgeons of the country, in case they wish to bring their patients there to operate on them or to treat them. The institute comprises a surgical service, a medical service, and a maternity service. In addition to the ordinary personnel, composed of graduate women nurses, the central institute receives nurses, for short periods, from the training schools for nurses; also groups of graduate ambulance workers belonging to the local chapters of the Red Cross.

The A. Depage Foundation comprises ten or more subservices: Consultation service for nurslings (Oeuvre nationale de l'enfance); antituberculosis dispensary; national league for combating tuberculosis; dispensary for hereditary diseases; national league for combating venereal disease; dispensary for mental hygiene; national league for mental hygiene; dispensary for ultraviolet ray treatment (national association for combating tuberculosis); dispensary for buccodental hygiene; association of dentists of Belgium; society for the protection of childhood against tuberculosis; work-shop, and library. Nurses from the various schools are received for short terms; ambulance workers, also, do practical work.

Instruction in Psychotechnics

Belgium is beginning to recognize the value of psychotechnics in industry. Evidence of this increased interest and appreciation may be derived from the ready response of the industrial world to the organization of a course of instruction in psychotechnics. This instruction dates back only to 1926. It constitutes one of the sections created, in 1923, by the Institut des hautes études de Belgique, in view of leading up to the general questions regarding work. But the scope of the instruction soon became too narrow, and, in 1925, a complete theoretical and practical course of instruction in vocational guidance was established, with a view to training the heads of future vocational guidance bureaus, which are already numerous in Germany and elsewhere. In 1926, there were created successively courses of instruction in psychotechnics, industrial psychology, and occupational selection, respectively, and, finally, a course in the scientific organization of labor from the triple point of view—industrial, commercial and administrative. This section of the Institut des hautes études was then transformed into the school of ergology—the science of labor.

Occupational Diseases

A royal decree has just been published, giving the list of occupational diseases, with mention, in each case, of the industries or occupations in which workers contracting them are entitled to compensation. The diseases listed are: (1) poisoning from lead, lead alloys or lead compounds, with the direct consequences of such poisoning, in the following industries and occupations: handling of minerals containing lead; zinc and lead manufacture; melting of old zinc and lead into "pigs"; working with lead plates; extraction of silver from silver-bearing lead ore; manufacture and handling of articles made of lead or lead alloys; manufacture of lead compounds; manufacture and repair of accumulators, or storage batteries; manufacture and use of enamels containing lead; polishing with lead filings or lead-containing putty; preparation or handling of glazes, cements or tints containing lead compounds; all other preparations that emit lead vapors or lead dust; (2) poisoning by mercury and its amalgams, with the direct consequences of such poisoning, in the following industries and occupations: handling of minerals containing mercury; manufacture of mercury compounds; manufacture of measuring or laboratory apparatus; preparation of the materials used in hat making, including the manufacture of felt hats; gilding under application of heat; use of mercury pumps for the production of a vacuum; manufacture of mercury-containing explosives; handling of mercury and its amalgams, and (3) anthrax infection contracted through the handling of animal matter capable of transmitting the anthrax virus.

Brussels' Special Medical Week

The ninth session of Brussels' special medical week, the so-called Journées médicales, will be held, June 22-26, 1929, under the patronage of the king and queen of Belgium. Profs. Henry Coppez, Jean Demoor, Jean Verhoogen and Auguste Slosse have accepted the chairmanship of the Journées médicales.

An interesting feature of the program, this year, will be the visit to the new Faculté de médecine de Bruxelles, which is now the most complete and the best equipped in Europe. The opening session of the "medical week" will be held, Saturday, June 22, at the Palais des académies. The opening address, on a paramedical topic, as is the custom, will be delivered by Dr. Nepveu, a prominent otorhinolaryngologist of Paris, who, under the pseudonym Luc Durtain, has made a name for himself in modern French literature.

BERLIN

(From Our Regular Correspondent)

May 18, 1929.

Combat Against Noise

In the larger cities of the world, noise has become a difficult problem. An intensive crusade against noise has been started in Germany. The Deutsche Gesellschaft für Gewerbehygiene (German society of industrial hygiene), which has formed a special committee for combating impairment of hearing due to industrial noise, has published and distributed a pamphlet on the causes and prevention of impaired hearing and on industrial noise, according to which: 1. Noise can impair hearing by its intensity as well as by its duration; noise is transmitted not only through the air but also through the walls and floors of the working rooms. A single strong sound impression, such as a whistle, explosion or stroke, is especially injurious if it occurs suddenly and unexpectedly. 2. The noise injures the most sensitive and vital parts of the organ of hearing; namely, the auditory nerve endings in the cochlea. 3. Not every human ear is injured by loud continual industrial noise. The greater the power of resistance of the organism, and the healthier the organ of hearing, the less harmful is the effect of noise. 4. An injury of the ear that is caused by a sudden and extremely loud sound (whistle, detonation) is noticed immediately by the injured person. A sensation of pressure is noticed, a ringing sound and earache develop; a strong blast of air sometimes causes bleeding and discharge of fluid from the ear. Impairment of hearing caused by continuous, moderate occupational noise develops gradually and is at first hardly noticed. In the beginning, many workers do not feel the influence of the noise of the workroom. Examination by an ear specialist often reveals the impairment of hearing in such persons who are not aware of their injury. 5. In case of impaired hearing, the individual is at first incapable of perceiving high tones, as tinkling, whistling, and the tones of a violin. In case of prolonged duration of injurious effects of noise, the degenerative process extends to the other auditory cells which serve for the perception of lower tones. 6. Difficulties of hearing which are due to a cold (causing swelling of the eustachian tube) or by accumulation of ear wax, or plugs formed by the dust of the working materials, should not be confounded with essential impairment of hearing. 7. Syphilis and other infectious diseases often lead to disorder of the organ of hearing. Excessive drinking and smoking can reduce the power of resistance of the auditory nerves against injurious noises. 8. Stopping the ears with plugs of cotton or of flax fiber is not sufficient protection against noise in workrooms. The ears should be protected regularly with compact plugs made of gauze saturated with petrolatum or wax. If the floor vibrates, straw, cork or rubber soles or felt shoes may be helpful; for kneeling, felt mats may be used. 9. Apprentices or young workers, if coming from families with hereditary ear troubles, should not work in noisy factories. If they suffer from diseases of the ear, they should consult an ear specialist before entering such employment. When beginning work in an especially noisy plant, an examination by an ear specialist is advisable. During the period of employment the examination should be repeated from time to time. 10. A worker who finds that a noisy occupation impairs his hearing, or is detrimental to his general condition, should choose different work. 11. In all cases of beginning impairment of hearing, an ear specialist should be consulted. This should not be postponed until serious disturbances become noticeable, such as ringing in the ears or attacks of dizziness. The earlier treatment is begun, the better is the prospect for improvement or recovery. 12. Endeavors that strive to limit industrial noise should be promoted and supported. They include the proper distribution of machines, and suitable contrivances for the suppression of noise. Relaxation in quiet surroundings when away from work is the most helpful means of preventing ear troubles.

Sexual Research and the Penal Code

A convention of the German section of the International Society of Sexual Research was recently held in Berlin under the chairmanship of Geheimrat Dr. A. Moll. The topics of the discussion were the sexual regulations of the new penal code. The first speaker was Professor Mittermaier of Giessen, who discussed the regulations from the point of view of the criminologist. The bill should be drafted with regard for the freedom of the sexual life, a freedom which neither limits the liberty of the other party nor injures or endangers the welfare of the public. Limitation of liberty is not advisable because perpetrators of sexual crimes are generally psychopathic or mentally defective individuals. The question of sterilization should be thoroughly investigated. Another speaker elucidated the point of view of the Catholic church. One is often met with the misunderstanding that the Catholic church considers the sexual life as sinful. The church has not changed its condemning attitude toward abortions; however, it does not generally consider abortion during the first eighty days as a penal offense. Whether the clauses concerning homosexuality should be retained in the bill is, from the ethical point of view, to be questioned.

The political economist Prof. Julius Wolff of Berlin discussed abortion from the standpoint of the social philosopher and statesman. He pointed out that the question of abortion has to be considered as a problem of social politics. The speaker prepared a draft of the bill which provides for the interruption of pregnancy during the first three months whenever social circumstances indicate its necessity. The social hygienist Professor Grotjahn of Berlin declared that he could not fully approve of Professor Wolff's proposition. Instead of complete legalization of abortion, he advocates the publication of information on contraceptives. The new penal code should at least permit the physician, in certain cases, to perform sterilization, when requested by the patient. He also pointed out the progressive attitude noted in the last draft of the bill: it does not consider sexual intercourse among relatives by marriage as an incestuous act.

Dr. Moll objected to the proposal that the sexual intercourse of homosexuals should be penalized. He also proposed parenthood insurance. The burden of this insurance should be carried chiefly by childless and unmarried individuals. He pointed out that, if the state desires a large number of offspring, it is necessary that provision be made for support of the children. The speaker objected to sterilization on the ground that there has not been sufficient experience in this field and that it cannot be determined whether the desired results have been realized. A jurist of Berlin requested that homosexualism among women be penalized as it is among men. He considers the sexual activity of each individual not as a private affair but rather as a matter of public importance. He holds that the state has the right to make sexual regulations. Professor Müller-Hess of Bonn asserts that homosexual inclinations are not innate. He believes that homosexualism depends on the environment in which one gains his experience before puberty.

Marriages

RAYMOND GREEN to Miss Miriam Kiefer, both of Chicago, May 27.

FRANK OREL NOVY to Miss Estelle Freeman, both of Saginaw, Mich., June 6.

CHRISTOPHER JOHNSTON, Baltimore, to Miss Lucie Bouldin Garrison of Crozet, Va., June 6.

HORACE TAYLOR HAWKINS, Waynesboro, Va., to Miss Avis Curtis Bernard of Richmond, April 22.

EUELL CLAUDE JAMISON, Rocky Mount, Va., to Miss Ella Virginia Marshall of Mica, April 27.

ARCHIBALD SWEETLAND DEAN, Jamestown, N. Y., to Miss Eleanor Campbell Genthner at Newton Center, Mass., June 8.

Deaths

Samuel Howard Gilliland ✠ Marietta, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1904; member of the American Association of Pathologists and Bacteriologists; instructor in veterinary bacteriology and laboratory diagnosis, University of Pennsylvania, in 1901 and 1902; director of the laboratories of the Pennsylvania State Department of Health in 1912 and 1913; president of the Gilliland Laboratories; aged 51; died, May 27, at Lancaster.

John Francis Cowan ✠ San Francisco; Cornell University Medical College, 1910; clinical professor of surgery, and formerly instructor, assistant professor, associate professor and professor of surgery, Stanford University School of Medicine; served during the World War; on the staff of the Lane Hospital; aged 49; died, May 16, at Los Angeles, of heart disease.

Frank A. Allen, Ironton, Minn.; George Washington University Medical School, Washington, D. C., 1905; member of the Minnesota State Medical Association; one of the physicians in charge of the Cuyuna Range Clinic and Miners' Hospital, Crosby; aged 52; died in May, of coronary thrombosis and pulmonary infarct.

William Cleveland Latimer, Brooklyn; New York Homeopathic Medical College, 1881; formerly on the staffs of the Brooklyn Maternity Hospital and the Cumberland Hospital; aged 80; died, May 30, at the Brooklyn Hospital, of pneumonia, as the result of a fractured spine received in an automobile accident last March.

George Ellis Mills, Evansville, Ind.; Medical Department of Emory University, Atlanta, Ga., 1915; medical director of the Boehne Tuberculosis Hospital, and formerly member of the staff of the Irene Byron Tuberculosis Sanatorium, Fort Wayne; aged 37; was killed, May 14, at St. Louis, in an automobile accident.

Rees Bowen Gillespie, Tampa, Fla.; Medical College of Virginia, Richmond, 1884; member of the Medical Society of Virginia; past president of the Tazewell County (Va.) Medical Society; acting assistant surgeon, U. S. Public Health Service; aged 68; died, April 4, in a hospital at New Orleans.

Miriam Gertrude Kerruish Stage, Cleveland, died, May 15, in the disaster of the Cleveland Clinic, where she had accompanied a relative for treatment. Dr. Stage was 59 years of age, and graduated from the Medical Department of Ohio Wesleyan University, Cleveland, in 1895.

Enfer Clinton Webster ✠ Bible Grove, Ill.; St. Louis University School of Medicine, 1905; president and formerly secretary of the Clay County Medical Society; aged 50; was instantly killed, May 21, when the automobile in which he was driving was struck by a train.

Mark S. Wade, Kamloops, B. C., Canada; Fort Wayne (Ind.) College of Medicine, 1882; Medical Department, University of California, 1889; aged 70; died, April 19, at the Royal Inland Hospital, Vancouver, following an operation.

Stanley H. Titus ✠ Spokane, Wash.; George Washington University Medical School, Washington, D. C., 1907; on the staffs of the Sacred Heart Hospital and St. Luke's Hospital; aged 48; died, April 23, of coronary thrombosis.

Charles Austin Ward, Binghamton, N. Y.; New York Homeopathic Medical College and Hospital, 1887; formerly on the staff of the City Hospital; aged 66; died, May 22, in a hospital at New York, following an operation.

Samuel Joy Rowland ✠ Yakima, Wash.; University of Illinois College of Medicine, Chicago, 1916; served during the World War; aged 37; on the staff of St. Elizabeth Hospital, where he died, May 15, of erysipelas.

William Alexander MacKenzie, Leesburg, Fla.; St. Louis University School of Medicine, 1903; formerly mayor of Leesburg and member of the state legislature; aged 51; was found dead, May 20, of a gunshot wound.

Arthur W. Kipp, Detroit; Detroit College of Medicine and Surgery, 1902; member of the Michigan State Medical Society; aged 50; died, May 21, at the Harper Hospital, of cerebral hemorrhage and arteriosclerosis.

Tobias G. Barnhill, Findlay, Ohio; Homeopathic Hospital College, Cleveland, 1873; formerly county coroner, and member of the board of health and the board of education; aged 78; died, May 31, of myocarditis.

James Clyde Boyle, Butler, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1892; member of the Medical Society of the State of Pennsylvania; aged 64; died, March 28, of cerebral hemorrhage.

Richard B. Douglas, Terre Haute, Ind.; Eclectic Medical College of Indiana, Indianapolis, 1903; member of the Indiana State Medical Association; aged 53; died, May 25, of recurrent carcinoma of the colon.

Stephen B. Marvin, Cincinnati; Medical College of Ohio, Cincinnati, 1893; past president of the board of education of Cincinnati; aged 59; died, June 2, of pulmonary tuberculosis and diabetes mellitus.

James L. Otterman, Kansas City, Kan.; American Medical College, St. Louis, 1877; Kansas City (Mo.) Medical College, 1894; Civil War veteran; aged 81; died, May 15, in Emporia, of heart disease.

Joseph Perry King, Galena, Kan.; Eclectic Medical University, Kansas City, 1915; formerly mayor of Galena; aged 63; died, May 28, at the home of his son in Pittsburg, of heart disease.

William Stillman Bell, Quincy, Fla.; Medical Department of the University of Alabama, Mobile, 1906; aged 53; died, May 12, in a hospital at Atlanta, Ga., of acute endocarditis.

Edward Meyer, Carsonville, Mich.; Michigan College of Medicine and Surgery, 1894; aged 59; died, April 18, at the Grace Hospital, Detroit, of hemorrhage and pyonephrosis.

George H. Geiger, Dayton, Ohio; Starling Medical College, Columbus, 1873; member of the Ohio State Medical Association; aged 80; died, May 25, of edema of the brain.

John T. Walker, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1873; aged 86; died, May 28, in a local hospital, of hypertrophy of the prostate.

Abram Caspe, New York; Columbia University College of Physicians and Surgeons, New York, 1896; aged 72; died, June 2, of heart disease while attending a patient.

Florence L. Dickerson, Hudsonville, Miss.; St. Louis Eclectic Medical College, 1882; aged 73; died suddenly, in May, at Holly Springs, of cerebral hemorrhage.

Maurice Levy, Lakewood, N. J.; Long Island College Hospital, Brooklyn, 1901; aged 54; was found dead, June 2, at the home of a friend in Brooklyn, of heart disease.

William T. Atkinson, Paintsville, Ky.; Kansas City Medical College, 1872; veteran of the Spanish-American War; aged 81; died, May 25, of cerebral hemorrhage.

Grant J. Ross, Sioux City, Iowa; Medical College of Ohio, Cincinnati, 1867; Civil War veteran; formerly city health officer; aged 86; died, April 18, of cystitis.

Charles Clarence Donaldson, Arriba, Colo.; Western Reserve University School of Medicine, Cleveland, 1887; aged 70; died, May 22, of heart disease.

Irving Judson Pond, Glenns Ferry, Idaho; Hahnemann Medical College and Hospital of Philadelphia, 1903; aged 47; was found dead in bed, April 4.

William W. Goldnamer, Oakland, Calif.; University of Louisville (Ky.) School of Medicine, 1893; aged 57; died, May 13, of nephritis.

Arthur Cecil McIntyre ✠ Mendota, Ill.; College of Physicians and Surgeons, Chicago, 1902; aged 56; died, May 18, of cerebral hemorrhage.

Josiah Curtis Taylor, Hamilton, Ill.; Keokuk (Iowa) Medical College, 1899; aged 56; was killed, May 25, in an automobile accident.

Julio J. Lamadrid, Brooklyn; University of Pennsylvania School of Medicine, Philadelphia, 1871; aged 80; died, April 14.

Bureau of Investigation

FAYRO

Another Quack Obesity Cure of the Bath Salt Type

The Federal Trade Commission is continuing its good work in issuing complaints against various advertised fakes. Naturally, any campaign against fakes is likely to deal more extensively with "patent medicines" and quack products than with any other one line of merchandise. We now learn, through the National Better Business Bureau, that the Federal Trade Commission has issued a complaint against the Fayro Laboratories, Inc., a Delaware corporation, doing business from

Now You Can Reduce 2 to 4 Lbs. in a Night

Eat what you please
Wear what you please
Do what you please
Take no risky medicine

Send the coupon for your first three Fayro Baths

Thousands of smart women have found this easy way to take off 2 to 4 pounds once or twice a week. These women take refreshing Fayro baths in the privacy of their own homes.

Fayro is the concentrate of the natural mineral salts that makes it as effective as are the waters of the hot springs of America, England and Continental Europe. For years the spas and hot springs bathing resorts have been the retreat of fair women and well-groomed men.

Excess weight has been removed, skins have been made more lovely, bodies more shapely and minds brighter.

The Hot Springs Are Now Brought to You

You can now have all these benefits in your own bath. Merely put Fayro into your hot bath. It dissolves rapidly. You will notice and enjoy the pungent fragrance of its balsam oils and clean salts.

Then, Fayro, by opening your pores and stimulating perspiration, forces lazy body cells to sweat out surplus fat and bodily poisons. Add Fayro to your bath at night and immediately you will lose from 2 to 4 pounds in an easy, refreshing and absolutely harmless manner.

Your physician will tell you that Fayro is certain to do the work and that it is absolutely harmless.

Fayro will refresh you and help your body throw off worn out fat and bodily poisons. Your skin will be clearer and smoother. You will sleep better after your Fayro bath and awaken feeling as though you had enjoyed a week's vacation.

Lose Weight Where You Most Want To

Fayro reduces weight generally, but you can also concentrate its effect on abdomen, hips, legs, ankles, chin or any part of the body you may with.

Results Are Immediate

Weigh yourself before and after your Fayro bath. You will find you have lost from 2 to 4 pounds. And a few nights later when you again add Fayro to your bath, you will once more reduce your weight. Soon you will be the correct weight for your height. No need to deny yourself food you really want. No need for violent exercise. No need for drugs or medicines. Merely a refreshing Fayro bath in the privacy of your own home.

Try Fayro at Our Risk

The regular price of Fayro is $1.00 a package. With the coupon you get 3 full sized packages and an interesting booklet "Health and Open Pores" for $2.50 plus the necessary postage. Send no money. Pay the postman. Your money refunded instantly if you want it.

HERE'S PROOF

Read what Fayro Baths have done for others

"Five Fayro baths reduced my weight 11 pounds in 8 days. I feel better than I have felt for years."

"I weigh 18 pounds less and feel smarter and sleep better. Fayro is wonderful."

"My double chin vanished in the magic of Fayro baths."

"My hips were also the prominent until I commenced Fayro baths. I have lost 12 pounds."

"Thank you for Fayro. I lost 12 pounds in three weeks, feel better and certainly look better."

"Since childhood my thighs embarrassment. Fayro baths have reduced them beautifully. Thank you very much."

For obvious reasons, names are not quoted, but every letter published has been authorized and names and addresses will be given on request.

FAYRO

If each healthful bath of Fayro does not reduce your weight from 2 to 4 pounds, we will refund your money without a question. You risk nothing. Clip the coupon and mail it today

Fayro, Inc.
621 Locust St., Pittsburgh, Pa. Lib. 2-16-29

Send me 3 full sized boxes of Fayro in plain package. I will pay the postman $2.50 plus the necessary postage. It is understood that if I do not get satisfactory results with the first package I use, I am to return the other two and you will refund all of my money at once.

Name .....

Address .....

City ..... State .....

If you live outside the United States send International Money Order with coupon

Pittsburgh, and engaged in the manufacture, advertising and selling of an alleged cure for obesity. Some of the advertising claims made for "Fayro" are:

"Now you can reduce 2 to 4 pounds in a night."

"Eat what you please, wear what you please, do what you please, take no risky medicine. Send the coupon for your first free Fayro Baths."

"Fayro is the concentrate of the natural mineral salts that make it as effective as are the waters of the hot springs of America, England and continental Europe."

"Fayro . . . forces lazy body cells to sweat out surplus fat and bodily poisons."

"Fayro reduces weight generally, but you can also concentrate its effect on abdomen, hips, legs, ankles, chin or any part of the body you may wish."

One would imagine that even the superficial courses in human physiology that are part of the curriculum of the public schools would make it impossible for fakers to deceive the public into believing that obesity can be cured by putting something into the bath water. But, as has often been said, there is no fake too raw to feed the fat! The Federal Trade Commission, in its complaint against the Fayro Laboratories, Inc., sets out eighteen indictments against this humbug, each one answering claims that are, or have been, made for Fayro. The Commission charges:

"1.—Fayro is not the concentrate and the same mineral salt that make effective the water of twenty-two or any of the famous hot springs in America, England and continental Europe.

"2.—Excessive fat has not been removed nor has the human skin been made more lovely and human bodies more shapely and minds brighter by the use of Fayro.

"3.—Fayro does not open the body pores nor does it stimulate perspiration nor does it cause fat or bodily poison to be sweated out.

"4.—Reliable and skilled physicians do not recommend the use of Fayro.

"5.—The use of Fayro does not promote sleep.

"6.—Fayro does not reduce weight generally nor is it possible to concentrate its alleged effect on hips, legs, ankles, chin or any other part of the body.

"7.—Fayro will not reduce fat at a rate of two to four pounds per day or at all.

"8.—Chemists were never put to work by respondent or by any one else to prepare the formula for Fayro.

"9.—No chemists, pharmacist, or physician is employed by the respondent in supervising the preparation or manufacture of said compound nor does respondent maintain, operate or have access to a laboratory for conducting investigations for the elaboration or manufacture of chemicals or similar products.

"10.—Respondent has never made or had a painstaking or other analysis of any water of any of the said famous or other hot springs.

"11.—Fayro will not benefit a case of Bright's disease.

"12.—Fayro is made from Epsom Salt, common salt and a small amount of perfume.

"13.—The dissolving of Fayro in hot water does not duplicate hot springs water, nor will it recreate a hot springs bath.

"14.—Perspiration will take place in a hot bath of the character recommended by respondent but Fayro does not increase or facilitate the perspiration in the least.

"15.—Baths taken as recommended by respondent may do much injury, particularly in cases of heart trouble, hardening of the arteries, exophthalmic goiter, chronic Bright's disease and dropsy. One or more of these ailments may be present in obese persons. If the temperature of the bath should be raised too high and the person is unaccustomed to hot bathing, material harm is likely to result, especially in a case of bodily impairment.

"16.—Fayro used as directed, or otherwise, will not reduce the fat of the human body; it does not and cannot enter through the skin.

"17.—Laboratory tests do not prove that Fayro is a solvent of fat.

"18.—Fayro is an unsafe, unscientific, ineffective and undependable nostrum and will not remove fat or flesh from the human body."

The closing paragraph of the Commission's charge sums up the case against this mixture of epsom and common salt.

Advice to Young Practitioners.—The first years of practice are the years which determine irrevocably what manner of physician you are to be. The great men of our profession are the men who have never ceased to be students. During the years when you are finding yourself in your chosen community, before the demands of your practice engross you fully, you may, and by all means should, acquire the habit of self-directed study. Professional magazines, good books, should be studied as diligently and conscientiously as you ever studied your anatomy, physiology or surgery. Make every case a text for study. Set aside a part of each day for serious study. Present the results of your studies to your fellow physicians in the county medical society. Let it be made a monthly post-graduate course, where ideas may be presented and exchanged. Clinical cases presented and discussed in a "habitually friendly" manner will furnish material for many profitable meetings. One case well studied is more profitable than ten cases observed but casually.—Albright, G. C.: The County Medical Society, *J. Iowa M. Soc.*, April, 1929.

Correspondence

RUPTURE OF GALLBLADDER THROUGH ABDOMINAL WALL

To the Editor: — Concerning rupture of the gallbladder through the abdominal wall, the communication in the May 4 issue, by Dr. Arthur B. Coffin of Boston, reminds me of two cases I have seen at autopsy in the Los Angeles County General Hospital. A white woman, aged 64, some years previously had had a cholecystotomy, and shortly before death the gallbladder had ruptured spontaneously through the central portion of the old scar. Gallstones were present. In a white woman, aged 82, the gallbladder had ruptured and a large chronic subcutaneous biliary abscess, not containing stones, was found. The gallbladder contained a number of calculi. These are my observations in about 1,800 autopsies in the last six years.

Sir Humphry Rolleston, in "Diseases of the Liver, Gall Bladder and Bile Ducts" (1912, p. 766) states that biliary fistula through the abdominal wall is the most frequently reported variety, and cites Naunyn, who found that 184 out of 384 biliary fistulas were external or cutaneous, the next most common form being that between the gallbladder and the duodenum.

LAWRENCE PARSONS, M.D., Los Angeles.

ROENTGEN PELVIMETRY

To the Editor:—In THE JOURNAL, May 11, more than an entire editorial page is devoted to the topic "Roentgen Pelvimetry." It has been most inspiring and gratifying to us of the obstetric field the last half decade to note the increasing number of obstetric publications and editorial references in all medical journals, and none of the general journals have been more liberal than yours. This recognition bespeaks with a certainty that modern obstetrics is rapidly ascending the pinnacle so long enjoyed by surgery and medicine, and is more and more sharing their equality.

In the editorial, after reviewing the development of roentgen pelvimetry to date, you refer laudably (and justly so) to Dr. Thoms' recent article (THE JOURNAL, May 4) on his ingenious improved technic. However, I wonder whether you do not overemphasize the importance of this form of pelvimetry, especially when you lend interpretations apparently not intended by the author. Thus, you state, "the method seems practical and suitable for routine use." From the practical point of view it is not practical and suitable for routine use. It is unpractical as a routine because of the wide variance in the ability of babies' heads to mold, depending largely on the amount of ossification. Preossified heads well within the inlet measurements not infrequently refuse to mold and necessitate cesarean operation. On the other hand, readily moldable heads, overriding the symphysis as much as 1 or 2 cm., more than occasionally admit of spontaneous delivery. Another serious objection as a routine help is that the method naturally applies best during the early weeks or months of gestation, during which period plenty of acceptable authority has demonstrated that roentgen exposure may be injurious to early fetal development.

Then, too, you may be erroneous in your statement that "the need for roentgen measurement of other planes is not so great as that for measurement of the inlet." Many of us are of the opinion that there is only one truly practical pelvimeter of the inlet, namely, the baby's head, which is applicable both before and during early labor. This pelvimetry, combined with the test of labor, affords the most practical of all inlet pelvimetry. The head cannot be applied to the outlet, the other important plane, till late in labor, when it is often too late. If it were practical, and it would be if applied before gestation, roentgen pelvimetry would be more valuable here than at the inlet, because outlet pelvimetry, despite all known modern outlet pelvimeters, is still quite unsatisfactory except in more expert hands.

In short, roentgen pelvimetry probably never will be perfected to any degree of obstetric importance as pertains to the inlet, its chief assistance being rather only one of anatomic interest; namely, the classification of the pelvis. The original inlet pelvimeter, the baby's head, influenced by the test of labor, will no doubt carry on as the most practical routine pelvimeter. The author, Dr. Thoms, undoubtedly has this thought primarily in mind when he makes the statement of reservation, "If present methods of external pelvimetry are worth anything in diagnosis and prognosis in obstetrics, . . ."

C. O. MCCORMICK, M.D., Indianapolis.

EARLY DIAGNOSIS OF THROMBO-ANGIITIS OBLITERANS

To the Editor:—Dr. Saul S. Samuels' article (THE JOURNAL, May 11, p. 1571) was read by me with much interest because of the fact that I had the right leg amputated in November, 1926, and the left leg amputated in November, 1927, both at the juncture of the lower with middle third of the thigh as the result of endarteritis obliterans—a similar condition to thrombo-angiitis obliterans—and was forced to desist from following my profession.

Dr. Samuels' article is partially correct as far as objective observations are concerned in such cases but is far from correct so far as subjective signs are concerned, and I consider the latter the more important because in a majority of cases they lead one aright some ten years or more before the objective signs are demonstrable.

I am 67 years of age, graduated in pharmacy at the age of 20, studied medicine at the age of 44, and graduated from Tulane University at the age of 49. I have been in excellent health all my life; my family is of long life, and I have felt and still feel like a "16 year old." I never drank intoxicants, and very little water. I am an inveterate smoker. For twelve or fifteen years I have been troubled with corns on my right foot of a hard, callous character, but few, if any, on my left foot; they persisted in defiance to all treatment, and notwithstanding the fact that I wore comfortable shoes all the time.

In 1917 I joined a demonstrative procession in honor of the departure of a company of soldiers for overseas and walked about two miles; before it was over, I was forced to drop out and go to my office because of the pain in the calf muscles of my right limb, which soon ceased on resting.

Afterward when taking a walk of variable distances of from four to eight city blocks, I encountered the same pain and as time passed would encounter the pain on shorter and shorter distances until I reached a point at which I could not walk one block without pain and would have to stop and lift up the right limb for just a minute, when I could resume the walk.

In the winter of 1926-1927 I had severe pain in the heel of the right foot to such an extent that I could not use that foot on the brake of my car, and a small necrotic ulcer, the size of a pea, appeared on the heel in April, 1927, the foot and leg giving severe pain at nights, especially from 10 p. m. till 5 a. m., the objective symptoms being prominent about this time, which continued till amputation was done. During the following year the other leg behaved in the same way. Corns, fatigue, intermittent claudication, cold feet at night and the appearance of the toe nails preceded the objective symptoms by ten years.

L. M. WHITSITT, M.D., Fort Worth, Texas.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POSSIBILITY OF COCAINE POISONING AND TREATMENT OF CONVULSIONS

To the Editor:—I had a patient with a paronychia of the first finger. I injected 4 cc. of a 1 per cent solution of procaine hydrochloride with 0.0002 suprarenin. I am sure of the dosage as I prepared it myself. The injection was made in the middle of the finger to cause block. After the abscess was opened, the patient soaked her entire hand in hot water one hour. She left the office feeling good and I went on a call. Half an hour later she became unconscious and went into convulsions with rapid breathing for half an hour, according to the testimony of the relatives. When I arrived she had regained consciousness. Could this have been cocaine poisoning? If so, how long after injection may poisoning occur? Could this have been shock due to the pain after the anesthesia had left? Dr. M. Reese Guttman (THE JOURNAL, March 10, 1928) states that "Tatum and his co-workers advise the use of 100 mg. of soluble barbital dissolved in 5 cc. of a saturated solution of paraldehyde per kilogram of body weight" as an antidote for cocaine poisoning. For a man weighing 72 Kg. that would be 360 cc. of solution, representing 7.2 Gm. of soluble barbital and about 40 Gm. of paraldehyde. Under dosage he recommends using either 0.2 Gm. of soluble barbital or else the enormous dose mentioned. What does he really mean here? Another thing in the article I do not understand: in the first paragraph on page 755 he says, "The patient rallied after a hypodermic injection of 3 grains (0.2 Gm.) of phenobarbital." Does he really mean phenobarbital or is he referring to soluble barbital? He makes no mention of a phenobarbital preparation hypodermically in any other part of the article and he states that he used exactly the same dose as he later recommends us to use of soluble barbital. Soluble barbital is only about one-fourth as strong as phenobarbital. What is he intending to say here? Can you recommend something for the pain which follows about an hour after local anesthesia? Does soaking the part in hot water or applying packs help?

L. J. ALGER, M.D., McClusky, N. D.

ANSWER.—It would seem that, in the instance cited, the "convulsions" were not likely due to procaine hydrochloride because of the time of one and one-half hours elapsing between the application of the anesthetic and the onset of symptoms. Pain as an after-effect would seem to be a more likely cause of the disturbance.

The antidote, soluble barbital and paraldehyde, recommended by Tatum and his co-workers, as quoted by Guttman, was for dogs and monkeys poisoned by cocaine. This dose was not intended for man. For man the dosage of soluble barbital should be approximately the standard dose of the drug used as a hypnotic. In treatment of an attack of convulsions from cocaine in man, Tatum's recommendation (Tatum, A. L.: *Illinois M. J.* **49**:478 [June] 1926) is "to employ a dosage equal to or slightly larger than the usual standard hypnotic dose [of soluble barbital]. If this is insufficient to completely check the clonic convulsions, a cautious increase in dosage would be indicated." For convulsions from cocaine, and presumably also procaine hydrochloride poisoning, quick measures are necessary; hence, intravenous injections of soluble barbital offer the quickest action. As a prophylactic, Guttman recommends phenobarbital in ordinary hypnotic doses (0.2 Gm.), while John Leshure (*Anesth. & Analg.* **6**:189 [Aug.] 1927) recommends the safer sodium barbital in a dosage as when used as a hypnotic.

For postoperative pain heat is to be recommended but, if a reasonable amount of relief is not thereby obtained, codeine or morphine may be required.

BISMUTH THERAPY IN SYPHILIS

To the Editor:—Would you advise the use of water soluble preparations of bismuth instead of the oil suspension preparations of bismuth for intramuscular injections in the treatment of syphilis?

THEODORE R. INGE, M.D., Newark, N. J.

ANSWER.—The principles that apply to the selection of water soluble as compared with oil suspended insoluble preparations of bismuth in the treatment of syphilis would not seem to be essentially different from those now recognized for the use of mercury preparations except for the fact that bismuth preparations in general, because of the greater attention which they have received, are pharmaceutically more eligible than are the corresponding mercurials.

In accordance with fundamental principles, a water soluble bismuth salt should be selected when a rapid transient effect is desired, and the administration of such a preparation should be more frequent than that of an oil suspended insoluble bismuth preparation. It is to be expected that water soluble preparations will be comparatively free of cumulative action, a fact that may be desirable in a brief intensive course but less appropriate to prolonged or irregular treatment.

According to the recent observations of Engelhardt (*Arch. f. Dermat. u. Syph.* **156**:1, 1928), the daily dose of bismuth (bismuth ion) by whatever salt introduced should not exceed in general from 25 to 30 mg., and this dosage should be adhered to whether a soluble or insoluble preparation is used. The average course should range from 1,100 to 1,300 mg. of bismuth (as Bi), and the interval between courses with a water soluble preparation should not exceed six weeks, whereas the interval with an oil suspended salt should be from eight to ten weeks.

At the present time no complete replacement of one type of drug by the other is desirable or expected. A selection of the type of salt used should be made in accordance with the requirements of the individual case. Adequate descriptions of accepted brands of the different types of bismuth preparations appear in New and Nonofficial Remedies, 1929.

TOXICITY OF PHENACAINE (HOLOCAINE) AND COCAINE

To the Editor:—What is the toxicity of holocaine as compared with cocaine? On a bottle of 1 per cent ophthalmic solution of holocaine I note: "Compared with cocaine it is fully as anesthetic, quicker in its action, its effect is more lasting, and being more penetrating," etc. In local anesthesia tonsillectomy I use 5 per cent cocaine for mucous membrane anesthesia, with 1 per cent novocain (procaine hydrochloride) for injection. This cocaine swabbing process takes a little time. I would like to know if holocaine could be used safely in 0.5 to 1 per cent to spray the pharynx for sufficient mucous membrane anesthesia; that is, to abolish the gagging reflex sufficiently for this work. I doubt if one-fourth ounce would be used. As it is, we have to use from a scant half ounce to almost an ounce of the 5 per cent cocaine solution for swabbing. My idea would be to inject my novocain solution; wait, say, ten minutes for this to take effect; then spray the pharynx with the holocaine solution; wait, say, two minutes for this effect; then remove the tonsils, which with my suction tonsillectomy technic takes from six to ten seconds per tonsil. Would a weaker solution of holocaine be preferable if it can be safely used this way? Does holocaine come under the Harrison law? Can you suggest a better spray solution?

J. B. H. WARING, M.D., Cincinnati.

ANSWER.—According to Eggleston and Hatcher (THE JOURNAL, Oct. 25, 1919, p. 1256), phenacaine (holocaine is a proprietary name for phenacaine, as described in New and Nonofficial Remedies, 1928, p. 32) in 1 to 2 per cent solution is only slightly less toxic than cocaine in 5 to 10 per cent solution while, according to Winselmann, phenacaine is the most toxic of all local anesthetics. Judging from its effect on the cornea, the anesthetic effect of 1 to 2 per cent phenacaine is produced more rapidly than is a similar effect with 4 per cent cocaine but is infinitely more irritating because phenacaine must be kept in slightly acidulated solution, for in neutral or alkaline solution the drug is precipitated. It is questionable whether any anesthetic spray used in the pharynx would have much effect, for the solution would not remain in contact with the mucosa long enough to permit of the necessary absorption. Certain it is that the possible anesthetic effect of any spray would be more than counterbalanced by the danger of poisoning from the large amount necessary. Phenacaine does not come under the Harrison Narcotic Law.

PTOMAINE POISON

To the Editor:—Will you kindly let me know what is the latest conception of ptomaine poison and could this have any relation to myocarditis?

ARTHUR L. SMITH, M.D., Lincoln, Neb.

ANSWER.—Ptomaines are basic nitrogenous compounds resembling the alkaloids and are formed by the breaking down by means of bacterial enzymes of animal and vegetable proteins. They are usually the products of advanced decomposition. Most of them, or many, are of known chemical structure and of known physiologic action.

While it is possible that there are cases of poisoning by such ptomaines, it is probable that most cases of food poisoning are due to other causes. Most are the result of infection by known organisms, ingested with the infested food, as *B. botulinus* or the *Salmonella* group. A few incidents are cases of metallic poisoning, the results of errors in preparation, and some cases are probably allergic responses in a sensitized individual.

Poisoning by ptomaines, or by bacterial infections previously classified as ptomaine poisoning, cannot cause myocarditis. Clinical myocarditis is an inflammatory response of the heart muscle to certain specific organisms, in which the anatomic changes in the heart show a pathologic condition characteristic of the disease. The organisms or toxins responsible for so-called ptomaine poisoning do not cause myocarditis as it is

understood clinically. It is quite possible that at necropsy histologic changes in the heart muscle might be found in some cases of ptomaine poisoning, but it would not be according to our usual conception of myocarditis to classify them as such.

Degenerative and destructive lesions of the myocardium are found in a wide variety of infections, of intoxicative and nutritive disturbances, but these are not commonly referred to as myocarditis.

Botulism is a specific infection and is not to be classified as ptomaine poisoning. Even here, where anatomic changes in the heart muscle are found at necropsy, they are a part of similar changes found in other tissues at the same time, and one would hardly classify the case as a "myocarditis."

Circulatory phenomena in food poisoning of whatever cause are frequent, but are physiologic responses and are not due to cardiac changes.

CHANGES IN SOUNDS FROM HEART

To the Editor:—Please instruct me concerning the meaning of "change of third to fourth phase" in the heart sound. Please omit name.

M.D., Tennessee.

ANSWER.—It is assumed that reference is made to the changes in the sounds observed during auscultation over the brachial artery when determining blood pressure by the auscultatory method. For convenience, the sounds have been divided numerically into phases. After the cuff has been inflated until all sounds over the artery are obliterated and the pressure gradually lowered, a sharp, distinct systolic tapping is heard. This is designated as the first phase. As the pressure continues to be lowered, this is followed by a less sharp sound, more in the nature of a murmur, designated as the second phase. This is followed, as the pressure is further released, by a reappearance of the sharp, distinct sound, possibly not as loud, referred to as the third phase. The fourth phase begins just as this sound becomes more dull, and the the fifth phase as the sound disappears altogether. It is generally assumed that the beginning of the fourth phase marks diastolic pressure.

LEVULOSE, ARTICHOKES AND HONEY FOR DIABETES

To the Editor:—Dr. R. M. Olin, former health commissioner of Michigan and now chief of the health department of the Michigan State College of Agriculture, has advised me to write to you with regard to the place of levulose from honey and from artichokes in the diet of patients with diabetes. A company is being formed in this state to produce large quantities of artichokes, and the aid of farmers is being enlisted. The president of the company claims that levulose from the artichoke is a "health food" and can be included in the diet of diabetic patients. A honey products company and several honey experts make the following statements: "Since diabetics can use levulose and since nearly one-half the sugar content of honey is levulose, diabetics can, with the knowledge and consent of their physician, use honey." They also claim that honey can be used to replace orange juice in infant feeding, and make the further claim that honey contains vitamins A and B in sufficient amounts to increase its value. In order to control the extension program in working with honey and the artichoke, it is important that I have at hand the latest information in regard to the uses of the products above mentioned in diabetic diets. I would therefore greatly appreciate your cooperation in furnishing me with the facts based on the latest research.

J. F. Cox, East Lansing, Mich
Dean of Agriculture,
Michigan State College
of Agriculture.

ANSWER.—The question of the use of levulose in diabetes has been studied rather completely by Joslin and his associates in Boston, and there is still considerable dispute as to its action in diabetes. One thing seems to stand out, that although levulose is well borne at first, hyperglycemia and glycosuria soon make their appearance. The details of the various experiments may be found in Joslin's "Treatment of Diabetes Mellitus," edition 4, page 619.

The same group has studied the effect of Jerusalem artichokes, the composition of which is the same as that of other artichokes. They contain approximately 16 per cent of carbohydrate, chiefly inulin, which on hydrolysis yields levulose. These workers show that Jerusalem artichokes could be added to the diabetic diet. Joslin showed that it was possible to substitute 15 Gm. of carbohydrate from Jerusalem artichokes for 5 Gm. from 5 per cent vegetables, but has cautioned that a small dosage should be used to avoid the danger of gastric upset. At the recent meeting of the American Chemical Society a paper was read reporting experiments on which varying quantities of dried artichoke and inulin were used in the diet of a diabetic patient: the conclusion reached was that Jerusalem artichokes are of doubtful value as a source of carbohydrate for these patients.

The question regarding honey was answered in this column about a year ago. The information available does not show that honey contains as much of vitamins A and B as does orange. In food value the same amount of honey contains approximately six times as much carbohydrate as is found in an orange.

RECURRING ATTACKS OF DERMATITIS

To the Editor:—A man who had never been sensitive to ivy poisoning, although exposed every year while doing garden work, was poisoned after working around the ivy during the hot weather six years ago. The blisters appeared about both ankles and wrists and some on the backs of his hands. It was a hot day and he perspired freely. Several days later small red blisters appeared all over him and he was sick for about two weeks. During the rest of the summer there was some itching whenever he perspired freely. For six years now the itching and eruption have returned during the first hot weather, and small blebs appear around both wrists and some on the backs of the fingers. This year the blebs appeared and the itching recurred, especially in the axillary and inguinal regions, without any possible exposure to ivy as far as can be determined. Is there a lasting sensitivity following ivy poisoning that might account for this recurring dermatitis each spring?

GEORGE T. HARDING III, M.D., Columbus, Ohio.

ANSWER.—A history of annual or more frequent attacks of acute dermatitis after an attack of ivy poisoning is not unusual and conveys the impression of a sensitization. In the case described, because of the occurrence of blebs in the axillae and groins, it would be in order to examine the tops of the blebs for fungi.

DERMATITIS FROM "PENETRATING" OIL

To the Editor:—I have seen several cases of dermatitis of the hands in men working with oil used in the automobile industry for lubricating valves. The oil is purplish-blue and has an odor like oil of wintergreen. Can you inform me as to the analysis of the oil in reference to a possible etiology of the dermatitis? Please omit name and initials if published.

M.D., Chicago.

ANSWER.—This type of lubricating oil is widely known as "penetrating oil," usable in loosening up "frozen" nuts, for cleansing, for rust removal, and similar purposes. Commonly the basic ingredients are kerosene, benzine, benzene and paraffin oils, employed singly or in divers combinations. To this basic material may be added smaller quantities of heavier lubricating oils for residual lubrication. To afford individuality or patentability, these penetrating oils are likely to contain one or more special agents, such as phenols, cresols, nitroderivatives of benzene, toluene, phenols, coloring agents, and deodorants.

Dermatoses may be expected to arise from the use of practically any penetrating oil or kindred lubricants. In part this is due to the defatting of the skin, which property is shared with all such substances as gasoline, benzene and turpentine. In part these dermatoses are direct results of chemical burns from irritating agents found as ingredients in these substances. Phenols, when present, may in addition produce systemic poisoning from skin absorption. Aldehydes, and particularly acrolein, are always detectable in this type of product, which substances may contribute to the causation of skin lesions.

ADMINISTRATION OF NEOARSPHENAMINE

To the Editor:—Is it safe to administer neoarsphenamine intramuscularly or intra-abdominally? If so, in what concentrations should it be given? Please omit name.

M.D., Hibbing, Minn.

ANSWER.—It is not safe to administer neoarsphenamine intraperitoneally. According to New and Nonofficial Remedies, 1929, p. 64, neoarsphenamine may be administered by intravenous or intramuscular injection, the former being considered decidedly preferable.

DIATHERMY FOR PROSTATITIS

To the Editor:—1. What is the value of diathermy in treating chronic prostatitis and seminal vesiculitis of ten years' duration? 2. At what intervals and for what periods of time should the treatments be administered? 3. Should the treatments temporarily aggravate a coexisting auricular fibrillation? 4. What type of apparatus and what type of rectal electrode are best suited for the treatment of these conditions. Please omit name.

M.D., Philadelphia.

ANSWER.—1. Medical diathermy, the heating within physiologic limits of tissues by means of high frequency currents, is a valuable aid in treating chronic prostatitis and vesiculitis.

2. The sequence of the treatments is mainly determined by the tolerance of the rectum, which, however, rises in the course of application. As a rule, treatments administered every other day are well borne. It is important to evacuate the bladder and rectum previous to the diathermic application. The rectum is best cleansed by an oil enema. At first the treatment is continued until the patient reports spasmodic contractions within

the lower pelvis. After a better tolerance is once established the minimum duration of each sitting should be thirty minutes, which period later on is extended to one hour. Each treatment is started with a minimum of current, the magnitude of which is gradually increased until the patient reports a pronounced sensation of warmth within the rectum. The report of feeling distinct heat calls for reduction of the current to the level indicated.

3. Moderate treatments have no undesirable effects on the cardiac action.

4. Any standardized prostatic electrode and diathermy apparatus will answer the purpose.

OPERATIVE INTERVENTION FOR CORRECTION OF SQUINT

To the Editor:—At what age do authorities recommend operative intervention for the correction of an alternating squint when glasses have failed to correct the condition fully? The patient in question is a child, now aged 6 years, who developed an alternating squint when he was about 2 and has worn glasses since that time. For at least one year he has shown no improvement. Please omit name. M.D., Indiana.

ANSWER.—Opinions on this point have undergone somewhat of a change in the course of the last ten years. Formerly it was believed that operation on such a child should be postponed until about or just before the age of puberty; but with the increase of knowledge regarding fusion and the possibilities of developing fusion in young children, it is generally held that operation should be resorted to as soon as a two to three year trial with glasses has proved unsuccessful. In the case in question, operation should be performed at once in order to provide mechanical parallelism of the optical axes, after which fusion exercises should be started in order to develop the fusion sense so necessary to hold the eyes straight.

PROTEIN REACTION AND DEGREE OF SENSITIVITY

To the Editor:—Is there any conclusive evidence to show that the protein content is solely responsible for reactions following injection of antitoxin? If so, is the degree of the reaction dependent entirely on the amount of protein? A. P. BUTT, M.D., Elkins, W. Va.

ANSWER.—The evidence is fairly conclusive that proteins in antitoxic preparations are responsible for the so-called serum reaction, but the degree of reaction is not dependent wholly on the amount of protein but rather on the degree of sensitiveness of the person receiving the injection of antitoxin.

TOXICOLOGY OF NICOTINE IN INDUSTRY

To the Editor:—The National Council on Compensation Insurance is an association of practically all insurance companies throughout the country which engage in the writing of workmen's compensation insurance, and among its various functions is the rate calculation for manufacturing plants in the chemical and dyestuff industry. The rates for such chemical plants are based on the hazards of the raw materials used and the products manufactured in conjunction with the actual practices involved. Naturally, a plant using hazardous chemicals as raw materials receives a higher compensation rate than does one whose raw materials consist of chemicals or other substances which do not have any particular danger from the standpoint of explosions, poisons or corrosion. The council has recently been requested to give special consideration to the use of nicotine in certain manufacturing processes. Nicotine under the present procedure is considered as an absolutely nonhazardous substance, but our attention has been called to present inequitable treatment by the claim that nicotine is decidedly poisonous. We have been advised that the introduction of nicotine internally will usually result fatally, and that if nicotine is introduced into the system through an abrasion or a cut of any kind fatal results may occur if not immediately treated. A review of library material in an endeavor to verify this contention fails to reveal anything that would warrant a change in the present method of rating chemical plants using nicotine as one of their raw materials. The council has been in communication with the Chemical Foundation, Inc., for information; the foundation has been unable to suggest anything that would help in the solution of the problem, but refers to you as a possible source of information in connection with the hazards of nicotine. Have you any information concerning such hazards? Have any cases been reported in which disabilities or fatalities have occurred from the handling of nicotine in manufacturing processes?

G. V. FULLER, New York.
Assistant Secretary, National Council on Compensation Insurance.

ANSWER.—Nicotine is to be accepted as a highly toxic chemical. One grain is the approximate lethal dose for man, although a tolerance may be acquired. The alkaloid is volatile, thus enhancing the dangers connected with exposure. It acts deleteriously when introduced into the body orally, subcutaneously or on topical application. Its action is swift, and death occurs from large doses within a few moments. By far the greater number of fatalities have been occasioned by the accidental drinking of disinfecting solutions containing nicotine. A few deaths have been attributed to nicotine when used as a constituent of rectal injections or hair washes.

Discussions of the toxicity of nicotine may be found in:

Peterson, Haines and Webster: Legal Medicine and Toxicology, Philadelphia, W. B. Saunders Company **2**: 554, 1923.
Solis-Cohen: Pharmaco-Therapeutics, New York, D. Appleton & Co., 1928, p. 1812.
Sollmann, Torald: Manual of Pharmacology, ed. 3, Philadelphia, W. B. Saunders Company.

Information as to industrial poisoning from nicotine centers about the tobacco industry. Reference may be made to:

Burstein, A.: The Degree of Nicotine Action on the Workman's Organism from Inhaled Tobacco Dust, *J. Indust. Hyg.* **9**: 512, 1927.
Kober, G. M., and Hayhurst, E. R.: Industrial Health, Philadelphia, P. Blakiston's Son & Co., 1924.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9-12, 1929. Chairman, Dr. J. N. Baker, 519 Dexter Avenue, Montgomery, Ala.

AMERICAN BOARD OF OPHTHALMIC EXAMINERS: Portland, Ore., July 8, and Philadelphia, Oct. 21. Sec., Dr. William H. Wilder, 122 South Michigan Avenue, Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Portland, Ore., July 8, 1929. Sec., Dr. W. P. Wherry, 1500 Medical Arts Building, Omaha, Neb.

ARIZONA: Phoenix, July 2, 1929. Sec., Dr. H. P. Mills, 320 Goodrich Building, Phoenix, Ariz.

CALIFORNIA: Los Angeles, July 8-11, and San Francisco, July 15-18. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento, Calif.

HAWAII: Honolulu, July 8, 1929. Sec., Dr. James A. Morgan, Room 48, Young Building, Honolulu, Hawaii.

ILLINOIS: Chicago, June 25-28. Supt. of Registration, Mr. V. C. Michels, Springfield, Ill.

INDIANA: Indianapolis, June 25-27. Sec., Dr. E. M. Shanklin, 421 State House, Indianapolis, Ind.

MAINE: Augusta, July 2-3. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MISSISSIPPI: Jackson, June 24-26. Sec., Dr. Felix J. Underwood, Jackson.

NEW YORK: New York, Albany, Syracuse and Buffalo, June 24-27. Chief, Mr. Herbert J. Hamilton, Educational Building, Albany, N. Y.

NORTH CAROLINA: Raleigh, June 24. Sec., Dr. John W. MacConnell, Davidson, N. C.

NORTH DAKOTA: Grand Forks, July 2-5, 1929. Sec., Dr. G. M. Williamson, Grand Forks, N. D.

OREGON: Portland, July 1-3, 1929. Sec., Dr. Joseph F. Wood, Suite 510-512 Selling Building, Portland, Ore.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 9-13, 1929. Dir., Mr. C. D. Koch, Harrisburg, Pa.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

SOUTH DAKOTA: Rapid City, July 16, 1929. Dir., Dr. H. R. Kenaston, Bonesteel, S. D.

WASHINGTON-BASIC SCIENCE: Seattle, July 11-12, 1929. Dir., Mr. Charles Maybury, Olympia, Wash.

WASHINGTON: Seattle, July 15-17, 1929. Dir., Mr. Charles Maybury, Olympia, Wash.

WISCONSIN—Basic Science: Milwaukee, June 24. Sec., Prof. Robert N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

WISCONSIN: Milwaukee, June 25-27. Sec., Dr. Robert, E. Flynn, 315 State Bank Building, LaCrosse, Wis.

District of Columbia January Examination

Dr. Edgar P. Copeland, former secretary of the District of Columbia Board of Medical Supervisors, reports the oral and written examination held at Washington, Jan. 8-10, 1929. The examination covered sixteen subjects and included 80 questions. An average of 75 per cent was required to pass. Sixteen candidates were examined, of whom fifteen passed and one failed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent
PASSED		
George Washington University Medical School	(1928)	82.8
Howard University School of Med.	(1928)	82.3, 84.3, 84.9, 85.5, 86.1, 86.5
Johns Hopkins University School of Medicine	(1909)	89.6
Harvard University Medical School	(1922)	90.9
Creighton University School of Medicine	(1926)	82.3
Meharry Medical College	(1923) 77, (1928)	83.4
Baylor University College of Medicine	(1927)	90.1
University of Virginia Department of Med.	(1925) 87, (1927)	83
FAILED		
Howard University School of Medicine	(1928)	71

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Jefferson Medical College of Philadelphia	(1916)	W. Virginia
University of Maryland School of Medicine and the College of Physicians and Surgeons	(1910)	Maryland

Book Notices

DENTAL ANATOMY: Classroom and Laboratory Quiz Compend with Supplementary Notes. By William C. Stillson, D.D.S., Associate Professor of Dental Anatomy, Western Reserve University Dental School. Cloth. Price, $2.25 net. Pp. 280, with 5 illustrations. Philadelphia: W. B. Saunders Company, 1929.

This is distinctly a question and answer manual and as such answers two purposes, furnishing a ready means of detailed information for the practitioner and providing a valuable instrument for drill to the student. Generally speaking, the usefulness of the quiz manual in professional education has passed, and the quiz method of training for examinations has been a detriment to professional education. As the author points out in his preface, however, this book is not intended to be a substitute for a properly illustrated textbook of dental anatomy, but an instrument for fixing in the mind of the student the knowledge contained in the text. In a field so packed with essential detail a sharp mental picture can be acquired only by repetition; and, used as it is intended, the book will certainly be a great help. There are individual definitions that would undoubtedly be questioned by some, but to embody in one statement a logical, satisfactory definition is not always possible. The book also contains some valuable technical directions which will be of particular help to teachers.

ETIOLOGIE ET PROPHYLAXIE DE LA GRIPPE: Bacille de Pfeiffer virus, filtrant grippal. Par R. Dujarric de la Rivière. Paper. Price, 32 francs. Pp. 105, with illustrations. Paris: Masson & Cie, 1929.

This readable little book on influenza is devoted chiefly to the bacteriology of the disease. Epidemic history and epidemiology are dealt with sketchily. After a lucid but not overcritical discussion of the possible causal relations of the Pfeiffer bacillus, of *B. pneumosintes* and of filtrable viruses, the author reaches the reasonable conclusion that the etiology of influenza is still an open question. Familiar and readily accessible articles furnish the material on which the book is based.

PHYSIOLOGICAL RESPONSE ATTENDING EXPOSURE TO VAPORS OF METHYL BROMIDE, METHYL CHLORIDE, ETHYL BROMIDE AND ETHYL CHLORIDE. Prepared from Data Contained in the Report of the Bureau of Mines to the National Research Council and the Dow Chemical Company. By R. R. Sayers, Surgeon, United States Public Health Service, W. P. Yant, Supervising Chemist, B. G. H. Thomas, Associate Pathologist, and L. B. Berger, Laboratory Assistant United States Bureau of Mines. Prepared by direction of the Surgeon General. Treasury Department, United States Public Health Service, Public Health Bulletin No. 185. Paper. Price, 15 cents. Pp. 56, with illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1929.

Extension of mechanical refrigeration in the home, in public buildings, in industry and in hot mines has prompted this study of refrigerants in terms of fire, explosive, health and general safety hazards. Inhalation experiments with guinea-pigs as test animals were conducted. The work was planned to provide information as to the acute effects arising from high and low concentrations of these gases in air. The bromine compounds were included because of their high fire repelling qualities, which might lead to admixtures with refrigerants of known flammability. From these experiments, results have accrued that arrange these compounds in an order of increasing toxicity as follows: ethyl chloride, methyl chloride, ethyl bromide and methyl bromide. This order is somewhat altered for long exposures to slight concentrations. The symptoms produced by methyl chloride, methyl bromide and ethyl bromide were similar. For exposure to high concentrations of vapors the symptoms were chiefly of an anesthetic character—that is, excitement, rapid loss of equilibrium, inability to walk, struggling and running motion of the legs. With low concentrations of vapors and long exposure, the principal symptoms were weakness, rapid pulse, convulsive rapid respiration, with râles, and in some cases frothy (often blood tinged) exudate from the nostrils. The symptoms attending exposure to ethyl chloride were similar to the foregoing, except that the signs of lung irritation were not pronounced. Excitement and restlessness appeared to be greater with the ethyl than with the methyl compounds. After exposure, the anesthetic effect produced by high concentrations disappeared rapidly, but symptoms produced by long exposure to low concentrations, such as weakness, rapid respiration and pulse, and râles increased, and death usually ensued from one to four days later. In the case of methyl bromide and methyl chloride, a distinct delayed effect followed exposure. These after-manifestations were observed after exposure to moderately low concentration. Occasionally delayed action occurred after short exposure to high concentrations. The authors devote a portion of the brochure to a discussion of chemical warning agents for refrigerants. The refrigerants under study were found not to possess sufficient warning properties to prevent serious voluntary exposure. It is well within the realm of practicability to add to these refrigerants and to many other hazardous substances warning agents with characteristic odors, characteristic but low grade irritants, or, under certain circumstances, characteristic colors. The accumulative data from this study on refrigerants afford some information on methyl and ethyl chloride as used as general anesthetics for human beings, although this aspect of the toxicity of these agents was not an object of the investigation. This small publication presents, on every page, evidences of carefully thought out and performed research work.

UROLOGY. By Edward L. Keyes, M.D., Ph.D., F.A.C.S., Professor of Urology, Cornell University Medical College. Third edition. Cloth. Price, $10. Pp. 761, with 204 illustrations. New York: D. Appleton & Company, 1928.

This edition is welcomed as an old friend. Previous editions have been used for years as textbooks for students. The volume is brought down to date and the old illustrations have almost entirely been replaced by new ones. The illustrations are of uniformly high character and add materially to the excellence of the book. There is almost no discussion of pathology, the author stating in the preface that this subject as well as other fundamental sciences in surgery are accessible elsewhere and that their omission thus permits him to confine the work to the limits of one volume. Naturally the point of view throughout the book, as anticipated, has a marked personal tinge; but this is not unwelcome. The treatment of the various pathologic entities is conservative and thoroughly rational. The work can be recommended without hesitation to the practitioner especially. From the students' point of view it would seem that certain important or cardinal points might be advantageously emphasized by slight changes in the typography or physical appearance of the page.

DIABETES LATENTE. Tesis del Doctorado. Por el Dr. Felix Puchulu. Paper. Pp. 215. Buenos Aires, 1929.

Latent, or potential, diabetes is a distinct entity, distinguishable from the early stage of diabetes mellitus. Hyperglycemia and glycosuria are absent; the clinical manifestations are often as in diabetes mellitus. Hyperglycemia, of longer duration than the normal, follows the ingestion of carbohydrates, but there is no glycosuria accompanying this. It is believed that disturbances in endocrine processes related to carbohydrate metabolism are responsible for this condition. The diagnosis is based on the experimental proof of faulty carbohydrate metabolism. Treatment consists in the ordinary regimen observed in diabetes mellitus. Many instances are cited illustrating the amount of hyperglycemia in fasting, or the symptoms that may occur in latent diabetes. This adds to the interest of the book and increases its value to the practitioner.

HANDBOOK OF SURGICAL DIAGNOSIS. By Clement E. Shattock, M.D., M.S., F.R.C.S., Surgeon to the Royal Free Hospital. Cloth. Price, $5.50. Pp. 678, with 78 illustrations. New York: William Wood & Company, 1929.

This small volume is a practical manual covering the differential diagnosis of the commoner surgical conditions. It is divided into general surgical conditions, surgery of the different systems and regional surgery. The only illustrations in the book are reproductions of roentgenograms. The information is condensed but not presented in outline or tabular form. The author has been a teacher of surgery for many years and presents this book as a volume especially adapted to the needs of the undergraduate and to the teacher of undergraduate surgery. The most elaborate chapter is that dealing with the diagnosis of bone conditions.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

THE DERMATERGOSES OR OCCUPATIONAL AFFECTIONS OF THE SKIN GIVING DESCRIPTIONS OF THE TRADE PROCESSES, THE RESPONSIBLE AGENTS AND THEIR ACTIONS. By R. Prosser White, M.D., M.B., C.M., President of the Certifying Factory Surgeons' Association. Third edition. Cloth. Price, $14. Pp. 734, with 58 illustrations. New York: Paul B. Hoeber, Inc., 1929.

New edition of valuable guide to industrial disorders affecting the skin.

MOVABLE KIDNEY: Its Etiology, Pathology, Diagnosis, Symptoms and Treatment. By William Billington, M.S., Ch.M., F.R.C.S., Senior Surgeon, Queen's Hospital, Birmingham. Second edition. Cloth. Price, 12s. 6d. net. Pp. 177, with 14 plates. London: Cassell & Company, Ltd., 1929.

Monograph concerning a highly debatable and much discussed disorder which the author feels has great clinical importance.

PROGRESSIVE RELAXATION: A Physiological and Clinical Investigation of Muscular States and Their Significance in Psychology and Medical Practice. By Edmund Jacobson, A.M., Ph.D., M.D., the Physiological Laboratory, the University of Chicago. Cloth. Price, $5. Pp. 429, with 69 illustrations. Chicago: University of Chicago Press, 1929.

Monograph reviewing development of the subject, author's research and technic.

THE MOBILIZATION OF ANKYLOSED JOINTS BY ARTHROPLASTY. By W. Russell MacAusland, M.D., Surgeon-in-Chief, Orthopedic Department, Carney Hospital, and Andrew R. MacAusland, M.D., Orthopedic Surgeon, Carney Hospital, Boston, Mass. Cloth. Price, $4 net. Pp. 252, with 154 illustrations. Philadelphia: Lea & Febiger, 1929.

Monograph of highly technical orthopedic interest.

DIAGNOSTIC METHODS AND INTERPRETATIONS IN INTERNAL MEDICINE. By Samuel A. Lowenberg, M.D., F.A.C.P., Assistant Professor of Clinical Medicine, Jefferson Medical College. Cloth. Price, $10 net. Pp. 1032, with 547 illustrations. Philadelphia: F. A. Davis Company, 1929.

Another extensive guide to the technic of diagnosis in internal medicine—the highest form of medical art and science.

OUTLINE HUMAN PHYSIOLOGY. Part 5: The Endocrine System. By Leslie French, M.D., Professor of Physiology, School of Medicine, George Washington University. Paper. Price, $1.50. (Per set of 8 parts, $10.) Pp. 41. Washington, D. C.: George Washington University, 1929.

OUTLINE HUMAN PHYSIOLOGY. Part 7: The Digestive System. By Leslie French, M.D., Professor of Physiology, School of Medicine, George Washington University. Paper. Price, $1.50. (Per set of 8 parts, $10.) Pp. 92. Washington, D. C.: George Washington University, 1929.

Teaching outlines in printed form including both established fact and theory.

TREATMENT OF VARICOSE VEINS BY INTRAVENOUS INJECTIONS. By J. D. P. McLatchie, M.D., C.M., Physician Western Skin Hospital. Cloth. Price, $1.60. Pp. 51, with illustrations. New York: Macmillan Company, 1929.

Another outline of the recently popularized injection method for varicose veins.

ÜBER GEISTESKRANKHEIT IN ALTER UND NEUER ZEIT: Ein Stück Kulturgeschichte in Wort und Bild. Von Dr. med. H. A. Adam, Oberarzt der Heil- und Pflegeanstalt Regensburg. Cloth. Price, 10 marks. Pp. 158, with 96 illustrations. Regensburg: Ludwig Rath, 1928.

The history of psychiatry revealed in picture and story.

THE NEW PSYCHOLOGY OF THE UNCONSCIOUS. By C. W. Valentine, M.A., D.Phil., Professor of Education in the University of Birmingham. Rev. ed. (Former title: Dreams and the Unconscious.) Cloth. Price, $1.60. Pp. 162. New York: Macmillan Company, 1929.

A brief review of the freudian conceptions in psychology.

DEUTSCHER DERMATOLOGENKALENDER: BIOGRAPHISCH-BIBLIOGRAPHISCHES DERMATOLOGEN-VERZEICHNIS. Herausgegeben von Prof. Dr. E. Riecke, Direktor der Univ.-Hautklinik, Göttingen. Paper. Price, 18 marks. Pp. 282. Leipzig: Leopold Voss, 1929.

Biographies and bibliographies of German dermatologists.

A SHORTER SURGERY: A Practical Manual for Senior Students. By R. J. McNeill Love, M.B., M.S., F.R.C.S., First Surgical Assistant, London Hospital. Cloth. Price, $4. Pp. 299, with 43 illustrations. New York: William Wood & Company, 1929.

An exceedingly brief guide to fundamental surgical principles.

EDEMA AND ITS TREATMENT. By Herman Elwyn, M.D., Assistant Visiting Physician Gouverneur Hospital, New York. Cloth. Price, $2.50. Pp. 182, with 3 illustrations. New York: Macmillan Company, 1929.

A review of various conceptions as to the reasons for deposition of fluid in tissues and of methods for removal.

THE PROCESS OF HUMAN BEHAVIOR. By Mandel Sherman, M.D., Ph.D., and Irene Case Sherman, Ph.D. Cloth. Price, $3. Pp. 227, with 15 illustrations. New York: W. W. Norton & Company, Inc., 1929.

Technical elucidation of the neurologic mechanism behind behavior.

ALLEN'S COMMERCIAL ORGANIC ANALYSIS: A Treatise on the Properties, Modes of Analysis, and Proximate Analytical Examination of the Various Organic Chemicals and Products Employed in the Arts, Manufactures, Medicine, Etc., with Concise Methods for the Detection and Estimation of Their Impurities, Adulterations and Products of Decomposition. Volume VII: The Vegetable Alkaloids. By the Editor, C. Ainsworth Mitchell, M.A., F.I.C., and the following Contributors: F. H. Carr, Oliver Chick, Norman Evers, J. J. Fox, T. A. Henry, P. J. Sageman, T. M. Sharpe, F. O. Taylor, R. W. Tonkin and R. Whymper. Fifth edition. Cloth. Price, $7.50. Pp. 869, with illustrations. Philadelphia: P. Blakiston's Son & Company, 1929.

STUDIES IN NUTRITION: An Investigation of the Influence of Saltpeter on the Nutrition and Health of Man with Reference to Its Occurrence in Cured Meats. By Harry S. Grindley, and Ward J. Mac Neal. Volume II: Discussion and Interpretation of the Data Relating to the Health and Physical Condition of the Men. By Ward J. Mac Neal, with the assistance of Josephine E. Kerr, and William S. Chapin. Cloth. Price, $5 net. Pp. 406, with 66 illustrations. Urbana: University of Illinois Press, 1929.

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A STUDY OF EDUCATIONAL ACHIEVEMENT OF PROBLEM CHILDREN. By Richard H. Paynter, Ph.D., Professor of Social and Abnormal Psychology, Long Island University, and Phyllis Blanchard, Ph.D., Psychologist, Philadelphia Child Guidance Clinic. Cloth. Price, $1. Pp. 72. New York: Commonwealth Fund Division of Publications, 1929.

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Miscellany

THE DAILY PRAYER OF A PHYSICIAN*

EMIL BOGEN, M.D.
CINCINNATI

The Daily Prayer of a Physician embodies the noblest philosophy and highest aspirations of the profession. Independent of any claims for its authorship it deserves a high place in the affections of physicians for the penetrating insight and lofty ideals displayed, as well as for the beautiful and impressive language employed. Added charm, however, arises from the understanding that this invocation is not the work of a modern writer but has come down to us without a trace of obsolete conceptions or discarded dogma from one of the early pioneers in medical science. As the Prayer of Maimonides it has appeared in numerous medical, religious and general publications and is to be found on the walls of many physicians' offices.

The recent rediscovery in the columns of THE JOURNAL[1] of the allegations that this prayer was the work of a more recent writer merits, therefore, a little further investigation before it is too readily accepted as correct. The late Dr. Gotthard Deutsch,[2] in his letter to the *American Israelite*, March 19, 1908, followed Moise Schwab,[3] the veteran French Jewish bibliophile, in ascribing the prayer to Dr. Marcus Herz,[4] a German Jewish physician of the eighteenth century. Indeed, the files of the Hebrew periodical *Ha-Meassef* contain a Hebrew translation of the prayer with a note that it was prepared by Isaac Euchel, the editor, at the request of the composer, Dr. Marcus Herz, without any reference to any earlier publication or original source.

After considerable investigation, however, an earlier appearance of the Daily Prayer of a Physician has been found, which was not known to either Moise Schwab or Dr. Deutsch. It appeared in the German periodical[5] *Deutsches Museum*, published in Leipzig in 1783, seven years before the publication of the translation bearing the name of Herz. The prayer in the *Deutsches Museum* bears the title "Daily Prayer of a Physician Before He Visits His Patients: From the Hebrew Manuscript of a Famous Jewish Physician in Egypt from the Twelfth Century." In the table of contents it is listed in the same manner, with the words "From the Hebrew" instead of the name of the author. There is nothing else in the magazine to identify its source, and it has proved impossible thus far to locate the actual manuscript from which this translation was made.

THE DAILY PRAYER OF A PHYSICIAN

All-kind! Thou hast formed the body of man in full wisdom. Ten thousand times ten thousand tools Thou hast united within him, and these are unceasingly active to maintain the envelope of the immortal soul, this beautiful entirety in harmony. Continually they are busy in complete order, agreement and accord. Whenever, however, this order is broken by the fragility of the matter and the untamedness of the passions, the powers come into conflict with one another and the body falls unto dust. Then Thou sendest man Thy merciful messengers, the diseases, and they tell him that danger is approaching, and they urge him to forfend it.

Thine earth, Thy streams, Thy mountains Thou hast blessed with such things as may bring remedy, and may mollify the pains of men and cure their ills.

And thou hast endowed man with wisdom so that he may relieve the body of ill, so that he may recognize order and disorder, so that he can discover the proportions of things and ascertain their functions and prepare against each evil that which may ameliorate or prevent it.

Me also Thine eternal providence hath chosen to watch over the life and health of Thy creatures. I am about to begin the exercise of my profession. Aid me, O All-kind One, in this great work, so that it may be of avail, for without Thine assistance nothing succeeds, not even the least.

May the love of fellow-man and the love of my art ensoul me. May not thirst for gain nor craving for fame mingle in my service. For these are enemies of truth and charity, and they might mislead me and keep me from doing what I ought to do for the weal of my fellow-men.

Preserve the strength of my body and of my soul, so that I might be unperturbably ready to help the rich and the poor, the good and the bad, the enemy and the friend. Let me see in the sick the man alone. Enlighten my understanding, that I may see what is before and encompass it, and that I may surmise what is absent and detect what is hidden. Let my mind not sink, lest I fail to recognize what is visible and overvalue it; lest, indeed, see what is not to be seen at all. For the limit in my art is lightly traced, and it comprises the health and life of men.

May my mind be always on the alert. While I stand at the bedside let not alien things intervene to rob me of attentiveness, nor disturb me in my silent meditation, for great and holy are the searchings on which depend the weal and woe of Thy creatures.

Grant that the sick have confidence in me and in my art, and that they heed my advice and orderings. Banish from their side all quacks and the host of counseling kindred, and of overwise nurses, for these are a cruel people and pervert the best intentions and thwart those who are expert in the healing art and they lead men to death.

If wiser men wish to teach and correct me, may I follow them and be grateful; for the compass of our art is large and wide. But if zealous fools upbraid me, then let the love of my art keep me strong so that I may adhere to truth without regard to years and fame; for weakness and yielding would involve the pain and even the death of Thy creatures.

Let me be patient and calm when older men of my profession, proud in the number of their years, crowd me out, or taunt me or offer jeeringly to better me. But let this, too, be for my improvement, for they know things that are forgotten to me; still let not their conceit grieve me. They are old, and old age is not master of the passions. I, too, hope to grow old upon the earth, before Thee, O All-good.

Give me frugality beyond all, except in the great art. May never awaken in me the notion that I know enough, but give me strength and leisure and zeal to enlarge my knowledge and to attain ever to more. Our art is great, and the mind of man presses forward forever.

All-good! Thou hast chosen me, in Thy grace, to watch over the life and death of Thy creatures. I am about to go to my labor. Be with me in this great work, so that it may avail, for without Thy help nothing succeeds, not even the smallest.

The earliest available reference to the prayer, then, describes it as the work of a famous Jewish physician in Egypt in the twelfth century. Absolute proof that this was actually written by Maimonides is, of course, impossible to adduce. The collected works of Maimonides do not contain the prayer, nor do the standard biographies of that savant refer to it. However, the fact that other writings of Maimonides, discovered long after his death, have been accepted as genuine increases the probability that other such manuscripts may have existed. This is not the place to dilate on the position that the Rabbi Moses ben Maimon, the Abu Amran Musa ben Meimun of the Arabs or the Rambam of the Jews, holds in the history of medicine. His treatises on accidents, diet, hemorrhoids, sex, poisons and other medical subjects, his voluminous translations and emendations of the works of his predecessors, especially of the Greeks and their immediate followers, as well as his masterly Guide to the Perplexed and other theological writings which have made him the highest authority among Jewish postbiblical sages, must be sought in other works. It may not be amiss, however, to recall that the personality of Maimonides, as depicted under the name of the physician "Hakim" in Sir Walter Scott's Talisman, coincides with what might be expected of the author of the prayer, and that his other writings, as shown by Kroner,[6] are in complete accord both with the form and with the spirit of the prayer.

* From the University of Cincinnati College of Medicine.

1. The "Prayer of Maimonides" and Its True Author, Miscellany, J. A. M. A. **92**: 836 (March 9) 1929.
2. Deutsch, Gotthard: American Israelite, March 19, 1908; ibid. June 25, 1914. Reprinted in Scrolls, Jew and Gentile **3**: 93, 1920.
3. Schwab, Moise: Repertoires **2**, 1899; Univers Israelite **58**: 818, 1903.
4. Herz, Marcus: Ha-Meassef **6**: 242, 1790.
5. "Aus der Hebraischen," Deutsches Museum **1**: 43, 1783.
6. Kroner, H.: Ost und West, 1912, p. 745.

Public Health Institutions.—The rapid extension of the dispensary and hospital facilities has been a great boon to the poor. It is charged that they are abused because of their frequent use by those well able to pay private physicians, thus depriving practitioners of legitimate sources of income, imposing upon the generosity of the public and private benefactors, and, moreover, lowering the self-respect of the beneficiaries themselves. When, as not infrequently occurs, these institutions have their facilities freely advertised in the public press with the object of attracting financial support from the public, the competition is all the more unfair because physicians as individuals, however confident they may be of their own ability, cannot ethically advertise.—Miller, J. A.: The Effect of the Public Health Program on the Interests of the Private Physician, *New York State J. Med.*, May 15, 1929.

Medicolegal

Liability for Purity of Autogenous Vaccine

(Baudenbach v. Schlesinger (N. Y.), 230 N. Y. S. 640)

Schlesinger prepared a vaccine from a portion of a stool of Baudenbach, for injection by her physician, Dr. Schwerdtfeger. After the fifth injection, an abscess developed. Baudenbach then sued Schlesinger and Dr. Schwerdtfeger, alleging negligence in the manufacture of the vaccine by Schlesinger and negligent administration by Dr. Schwerdtfeger. Dr. Schwerdtfeger was held free from liability, but Schlesinger was held liable in the sum of $5,000. He appealed, on the ground, among others, that the jury was permitted to speculate as to the cause of the injury. It appeared from the evidence that the vaccine, in the course of its preparation, was subjected to heat sufficient to kill colon bacilli and that that heat was sufficient to kill also the two pus-producing germs commonly found in the air, *Staphylococcus aureus* and *S. albus*. Nevertheless, after the development of the abscess, "chemists" employed by Dr. Schwerdtfeger found such pus germs in some of the ampules. They found no colon bacilli there, however, thus proving apparently that heat had been applied sufficient to kill colon bacilli and therefore sufficient to kill also such pus germs as were found. No cultures were made from the abscess, and there was no direct proof as to the kind of germs that caused it. In cases of this kind, involving infection by germs microscopic in size, said the court, the plaintiff is not required to establish the source of infection, by direct proof; he must furnish the best evidence available, and leave the jury to draw inferences from established facts. This method of proof usually involves the exclusion as far as possible of other probable sources of infection. In this case the testimony warranted the conclusion that the vaccine might have been infected in either of two ways: (1) by neglect in handling the ampules of vaccine, or in sterilizing the needle, or in some other way in the course of the administration of the vaccine; or (2) by infection of the vaccine through the air, after it had been prepared in Schlesinger's laboratory and before it had been placed in the ampules, or by failure properly to seal the ampules, or by failure to add a preservative necessary to prevent the growth of germs within the ampules. If the infection occurred by reason of any of the first group of causes named, Schlesinger could not be held liable. If it occurred by reason of any of the second group of causes, he could be so held. Admitting that pus-producing germs were found by "chemists" employed by Dr. Schwerdtfeger, there was no evidence to show that they had not been introduced into the ampules through breaks or holes not discernible by the naked eye, caused by improper handling by the nurse. There was another gap in the proof, too; the nurse, who alone handled the ampules and who administered the injection which caused the abscess, was not called as a witness to show that the abscess could not be traced to a cause for which she was responsible. The absence of such evidence left the jury in no position to determine by reasonable inference drawn from the facts whether Schlesinger or Dr. Schwerdtfeger was responsible. The verdict of the jury must necessarily have been founded on speculation and conjecture. The judgment of the court below was reversed and a new trial granted.

Physician's Right to Practice in City Hospital

(Henderson v. City of Knoxville et al. (Tenn.), 9 S. W. (2d) 697)

Dr. Henderson, a regularly licensed physician and surgeon, had been permitted, as were all other licensed and reputable physicians and surgeons in the city of Knoxville and Knox County, to treat and operate on patients in the Knoxville General Hospital. The hospital was owned and operated by the city and under the management and control of the director of public welfare. Seventeen members of the attending staff preferred charges against Dr. Henderson, based on what they regarded as reliable information, that as a member of the staff he had been guilty of unethical and unprofessional conduct. They alleged that it was currently reported and generally believed that he had been soliciting practice from physicians and, in some instances, to induce such physicians to refer their surgical cases to him, had offered to divide his fees with them. Dr. Henderson was tried before the staff and found guilty. The director of public welfare approved the action of the staff and notified Dr. Henderson that he would not be permitted further to practice in the hospital, except to care for patients already there. Thereafter, when Dr. Henderson sought to take another patient to the hospital for treatment, he was forbidden to enter. He then filed a bill in equity to restrain the city of Knoxville and the director of public welfare from interfering with him in the practice of his profession in the hospital. In the chancery court, Knox County, a decree was entered for the defendants. Dr. Henderson appealed to the supreme court of Tennessee, where that decree was reversed.

The charges preferred against Dr. Henderson, said the supreme court, were abundantly sustained, but Dr. Henderson, without contradiction, testified that he never solicited patients directly and that, without the consent of the patient, he never divided fees with a physician who brought a patient to him. The supreme court was familiar with no statute or ordinance which provides that what Dr. Henderson is charged with shall debar him from practice in the public hospitals of Tennessee. The state has passed laws for the licensing of physicians and has prescribed rules of conduct for their guidance after they have been licensed. Dr. Henderson was not charged with violating any of these statutes. So long as he stays within the law he has a right to practice in the public hospitals of the state of Tennessee, provided, of course, that he conforms to all reasonable rules and regulations of the institutions; but neither the city nor the hospital authorities can prescribe rules or regulations which contravene or conflict with state laws. The principles are different, however, with respect to private hospitals. Moreover, voluntary medical societies and associations can discipline in such ways as they see fit members who violate rules of conduct prescribed by such organizations. If physicians feel that the good of the medical profession demands regulations more stringent than those now in force, their remedy lies in the legislature, not in the courts.

In the chancery court, Dr. Henderson's bill for an injunction was dismissed on the theory that the director of public welfare was acting within his authority in excluding Dr. Henderson from the hospital, which was by law under the management and control of the director. It was not claimed that the director had any such express authority, but that one of the implied powers of his office was to say who should and who should not practice in the hospital. To empower a manager of a hospital, said the supreme court, to refuse a physician admittance or to expel him, if the manager's conception of professional conduct did not agree with that of the physician, would be a dangerous thing. A physician might be in today and out tomorrow, depending on the whim and caprice of the particular individual who happened to be manager.

Technicians' Reports as Basis of Physician's Opinion

(Sundquist v. Madison Rys. Co. (Wis.), 221 N. W. 392)

An automobile in which the plaintiff, Sundquist, was riding, in Madison, Wis., was struck by one of the defendant's street cars. She did not sustain physical injury but became hysterical. She had previously been well. She had never been nervous nor had digestive trouble, but after the accident she suffered from such disturbances. Two months later, in Olympia, Wash., while she was in a waiting automobile, a street car approached and clanged its bell. The automobile was not in the path of the street car, but the plaintiff became hysterical and fainted. The following night, one side of her body became paralyzed. She thereafter brought suit against the company in Madison. From a judgment rendered in her favor, the defendant company appealed to the supreme court of Wisconsin.

The physician who examined the plaintiff after the collision in Madison and the physician who treated her after she was paralyzed in Olympia diagnosed her condition as hysterical paralysis. They testified that such paralysis might be caused by a nervous shock and that the paralysis in this case might be referred back to the shock that had occurred. Physicians called by the defendant testified that the accident in Madison could not have caused the paralysis that developed two months later in Olympia. They agreed, however, that the incident in

Olympia would not cause a paralysis in a normal healthy person, that the collision with the street car in Madison might cause a serious nervous ailment, and that there might be some connection between the paralysis and the accident. The evidence submitted, the court said, presented an issue of fact for the jury and was sufficient to justify the jury's verdict. It is not essential to liability that there be proof of bodily physical injury, if physical disability results naturally and directly from extreme fright or shock.

The defendant urged that the testimony of the physician who treated the plaintiff in Olympia was not admissible, because he made his diagnosis of hysterical paralysis by the exclusion of other possible causes and in doing so relied on the report of the result of examinations made by hospital technicians, as well as on what he found on his examination of the plaintiff. The technicians who made the examinations referred to were not called to show how the several tests were made or that the results of the tests were correctly recorded in reports submitted by them, nor were the reports of the technicians received in evidence or the contents disclosed to the jury. The supreme court was of the opinion, however, that the testimony of the physician based in part on such reports was admissible. To say that a physician who has used the results of such tests in diagnosis and treatment may not testify what that diagnosis was would be to shut the eyes of the court to a source of information which is relied on by mankind generally in matters that involve health and may involve life—a source of information that it is essential that the court should possess in order to do justice between parties litigant. The supreme court declined to close the doors of the courts to the light which is given by a diagnosis which all the rest of the world accepts and acts on, even if the diagnosis is in part based on facts which are not established as true by sworn testimony in the case. The judgment of the trial court in favor of the plaintiff was affirmed.

Hospital Not Liable for Physician's Neglect

(Holland v. Hospital et al. (Ore.), 270 P. 784)

Holland, the plaintiff, a boy about 13 years old, fractured his thigh bone. His father entered into a contract with the Eugene Hospital, which allowed him his choice of the physicians on the hospital staff to render medical and surgical services to the patient. The father selected Dr. Neal, one of the defendants, who treated the patient while he was in the hospital. After his removal to his home, and until July 9, 1924, the patient was treated by the defendants, Dr. Neal and Dr. Howard, except between March 9 and April 16, when Dr. Howard alone treated him, because of Dr. Neal's absence. The complaint alleged that, because of the failure of the defendants to use reasonable diligence and skill, faulty union resulted. Verdicts were rendered against the Eugene Hospital and Dr. Neal, from which they appealed to the supreme court of Oregon. There was no evidence, said the supreme court, that the hospital entered into any contract or engaged to perform any services for the patient other than the ordinary services rendered in any hospital. The attending surgeon, Dr. Neal, was employed and paid by the plaintiff's father. There was no evidence that there was any contractual relation between the hospital and its staff, of which Dr. Neal was a member, or that Dr. Neal was an officer of the corporation. No complaint was made as to the accommodations of the hospital as such. The judgment against the Eugene Hospital was therefore reversed and the case dismissed as to it. The judgment against Dr. Neal was affirmed.

Sale of Medicine a Subterfuge

(Harris v. State (Okla.), 271 P. 263)

The defendant, Harris, was convicted of practicing medicine without a license and was fined $500. He appealed to the criminal court of appeals of Oklahoma, where he endeavored to convince the court that the transaction between him and one Weidman, on which the conviction was based, constituted only a sale of medicine and not the practice of medicine. The charge grew out of visits by Velma Weidman to the residence of the defendant. He was informed that she was in bad health and wanted an examination. After the examination was made, Harris told her that she had a tumor and was on the verge of "T. B.," but that he had an "oil of radium" to cure her. Two bottles of "oil of radium," one for internal and one for external use, would cost $125. The patient's husband paid the defendant $125 and received the preparation. The defendant sought to show that he made no charge for any advice or examination and claimed that it was no violation of the law to sell medicine in his home. But, said the court of appeals, it is evident that the physical examination, the pretended diagnosis, and the imposing on the credulity of the patient by the sale of a worthless preparation for $125 constituted but a single transaction. While it is probably true that the defendant informed his patient that he was charging for the drugs and not for the examination and diagnosis, that fact did not alter the situation. It was plainly only a subterfuge to avoid compliance with the law. The transaction was the practice of medicine within the meaning of the medical practice act. To the defendant's contention that the medical practice act was unconstitutional, the court replied that the constitutionality of the act had been already determined and was no longer open to question. The judgment of the court below was affirmed.

Standard of Practice of Unlicensed Practitioner

(Glovka v. Fortun (Ohio), 163 N. E. 309)

Julia Glovka held herself out as a physician, although she had no license to practice in Ohio and probably no license to practice anywhere. Anna Fortun was suffering from a tumor and submitted herself for diagnosis and treatment by Glovka. Glovka concluded that her patient was pregnant and used instruments to produce an abortion. The patient sued Glovka. She alleged that the diagnosis was wrong and the use of instruments improper, and recovered a judgment for $1,000. Glovka thereupon appealed to the court of appeals, Cuyahoga County. Of course, said the court of appeals, if the patient went to Glovka to have an abortion produced, the patient would be a party to the wrong and be estopped from claiming damages, but the record showed that the patient had not consulted her for that purpose. Glovka held herself out as a physician and did not use the ordinary skill of a physician and her patient was injured as a consequence. The judgment of the trial court was therefore affirmed.

Society Proceedings

COMING MEETINGS

American Medical Association, Portland, Ore., July 8-12. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association for the Study of Allergy, Portland, Ore., July 8-9. Dr. Warren T. Vaughan, 118 E. Franklin St., Richmond, Va., Sec'y.

American Association of Medical Milk Commissions, Montreal, June 24-25. Dr. Harris Moak, 360 Park Place, Brooklyn, Secretary.

American Bronchoscopic Society, San Francisco, July 6. Dr. L. H. Clerf, 128 South 10th Street, Philadelphia, Secretary.

American Dermatological Association, San Francisco, July 1-3. Dr. C. Guy Lane, 416 Marlborough Street, Boston, Secretary.

American Federation of Organizations for the Hard of Hearing, Cleveland, June 24-27. Miss Betty C. Wright, 1601 Thirty-Fifth Street, N. W., Washington, D. C., Secretary.

American Heart Association, Portland, Ore., July 9. Dr. Haven Emerson, 370 Seventh Avenue, New York, Secretary.

American Laryngological, Rhinological and Otological Society, San Francisco, July 4-6. Dr. R. L. Loughran, 33 E. 63d Street, New York, Sec'y.

American Physiotherapy Association, Portland, Ore., July 8-9. Miss C. H. Ballard, St. Francis Hospital, San Francisco, Secretary.

American Radium Society, Portland, Ore., July 8-9. Dr. G. W. Grier, Jenkins Arcade Building, Pittsburgh, Secretary.

American Society of Clinical Pathologists, Portland, Ore., July 5-8. Dr. H. J. Corper, National Jewish Hospital, Denver, Secretary.

American Urological Association, Seattle, July 1-3. Dr. Alexander Randall, Medical Arts Building, Philadelphia, Secretary.

Idaho State Medical Association, Lewiston, July 5-6. Dr. J. N. Davis, Kimberly, Secretary.

Medical Women's National Association, Portland, Ore., July 7-9. Dr. Elizabeth Kittredge, 3906 McKinley Street, Washington, D. C., Sec'y.

Montana, Medical Association of, Great Falls, July 17-18. Dr. E. G. Balsam, Box 88, Billings, Secretary.

Pacific Coast Oto-Ophthalmological Society, Salt Lake City, July 1-3. Dr. Walter F. Hoffman, 817 Summit Avenue, Seattle, Secretary.

Utah State Medical Association, Salt Lake City, July 1-3. Dr. M. M. Critchlow, Boston Building, Salt Lake City, Secretary.

Western Branch of the American Urological Association, Vancouver, B. C., July 5. Dr. W. E. Stevens, Flood Building, San Francisco, Secretary.

Wyoming State Medical Society, Casper, June 24-25. Dr. Earl Whedon, 50 North Main Street, Sheridan, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS

Forty-Fourth Annual Meeting, held in Atlantic City, N. J., May 7-8, 1929

The President, DR. C. P. HOWARD, Montreal, in the Chair

Unsolved Problems Concerning Acute Coronary Obstruction

DR. J. B. HERRICK, Chicago: In many cases of occlusion of the coronary artery, the origin is obscure. The relation of infection to these cases of acute thrombosis must be considered. Autopsy shows a chronic change of the vessel wall, especially a patchy atheromatosis, narrowing and arteriosclerosis. The answer may be sought in an alteration of the blood chemistry associated with focal or general infection. Some observers have found in the blood vessels definite changes associated with acute infectious diseases. Acute mural changes may be present in addition to the chronic lesions. Thus inflammatory processes may be a definite basis for chronic occlusion. Again, certain infections favor thrombosis while others do not. Syphilis is an infrequent cause. Why? There are the embolic phenomena. Some think this frequent; some think it infrequent. One explanation is that fragments may be detached from the intracardiac thrombus and scatter to form an obstruction of the pulmonary vessels. We may question, however, whether thrombi may not form in situ, thus giving rise to a multiple arteritis as well as coronary inflammation. Another question as to the coronary veins: is there any evidence of phlebitis or venous thrombosis? What is the condition of the thebesian vessels? What is the cause of death? It is generally assumed that the cause of death is ventricular fibrillation, but this is not true. In how many cases does fibrillation occur; in how many rupture; in how many gradual aortic failure; in how many a new thrombus in another vessel; in how many an increase in the size of the thrombus? What is the influence of compensatory enlargement of anastomosing vessels in saving life in one of these instances? The heart with gradually narrowing vessels is best able to withstand the insult of acute obstruction because of the comparative enlargement of the other vessels. What is the importance of the localization of the infarct? The immediate and remote effects of coronary occlusion depend not on the suddenness and completeness of the obstruction but on the size of the artery and its location. Again, is it possible to find the area of heart muscle damage and can we localize the lesion as in the cerebral artery? In regard to the pericardium, in what proportion of cases does the infarct reach the surface; in how many is pericardial friction found; in how many is the pericardium noiseless?

We should remember the milder types of the disease, for they are more frequent than we believe and we should be prepared to assess them at their proper value. We must evaluate minimum signs and symptoms. There may be attacks without pain; the pain equivalent may be sudden dyspnea or sudden drop in blood pressure. When does pain occur? it may precede, it may follow an attack. What percentage of cases of death in angina pectoris are due to acute coronary occlusion? What stress shall we place on atypical variations in dyspnea, pulse, blood pressure and freakish electrocardiograms? Then, as to treatment, how long do we keep our patients in bed with drugs; does digitalis do any good; are glyceryl trinitrate and theobromine useful?

The Problem of Angina Pectoris

DR. THOMAS MCCRAE, Philadelphia: Are the manifestations of angina pectoris always due to coronary disease? I think that coronary artery occlusion should not be regarded as angina pectoris. Occlusion of the coronary artery has a definite clinical picture and definite pathologic changes; on the other hand, angina pectoris belongs to a very indefinite group. It is certainly not always due to disease of the coronary artery. Some cases are referred to the stomach and esophagus. Gastric symptoms are secondary to cardiac disturbance. One such patient was able to forestall an attack if he washed out his stomach early enough. Angina pectoris associated with gastric disturbance may be due to deeper sensory reflexes but can also be secondary to disturbance of the coronary artery. One group of cases are secondary to disease focus elsewhere. In one case the treatment of a chronic prostatic ailment cured the angina. In another group of patients, when myocardial failure begins angina tends to disappear. It is difficult to explain this occurrence by ischemia or anoxemia. When the pain in angina is referred to the upper sternum, sometimes to both arms and sometimes to the right arm, I think it is due to coronary arteritis. In regard to sternal pain, I believe the upper location is more associated with the aorta and the lower pain to the heart itself. Causes of the attack are usually exertion, emotion and overloading of the stomach. Rest and glyceryl trinitrate are the most effective measures. The origin of the disease is probably multiple, some cases arising from the aorta, some from the heart; some are extracirculatory, probably reflex. The condition is indefinite as regards etiology and prognosis, and coronary occlusion should not be classified under this heading.

Extensive Diffuse Syphilitic Myocarditis with Malignant Syphilis

DR. A. S. WARTHIN, Ann Arbor, Mich.: A man, aged 23, who stated that he had not had a primary sore, had developed a gumma on the thigh three months before he was admitted to the hospital. The Wassermann reaction proved to be strongly positive. On admission the heart showed a rough systolic murmur. There was increasing dilatation. Three treatments had been given before admission. His mother had suffered from psychosis and had a history of one miscarriage. In the hospital the boy received bismuth sulphate and sodium iodide intravenously, mercury salts, mercurochrome and radium. The case ran a progressively downward course. Autopsy showed a dilated heart. The muscle was reddish brown with grayish patches—a typical tiger heart. There was no fibrosis but diffuse infiltration with increase of nuclei, atrophy and vacuolar degeneration. We were inclined to regard this as a congenital case. There were an enormous number of spirochetes in the lesions. The lesions on the trunk and thighs were extremely numerous, between three and four hundred. The lesions were of the same type as in eight cases of adult syphilitic myocarditis.

DISCUSSION ON PAPERS OF DRS. HERRICK, MC CRAE AND WARTHIN

DR. HARLOW BROOKS, New York: Dr. McCrae brought out an essential with regard to the prevailing idea concerning angina pectoris and its relation to disease of the coronary arteries. While disease of the coronary vessels is doubtless the most frequent basic pathologic change, it is by no means exclusively so. Second only to coronary disease, and probably closely associated with it in many instances, is an aortitis as the etiologic factor concerned in the complex. Many cases also arise as a direct result of disease of the myocardium. This is notably frequent after the infections which primarily cause a myocarditis or a myocardial degeneration. This type of case develops after or during the course of tonsillitis, scarlet fever, frequently in rheumatic fever and commonly after influenza. It is stated by some observers that angina may follow a pericarditis, especially one that involves the base of the heart. This is relatively rare and it is probably associated with more or less muscle invasion. One may more or less surmise as to the basic changes concerned by the character of the symptoms and signs manifested, especially as to the character of the pain. In true coronary cases the pain is customarily reflected to the shoulder and down the left arm. In aortic cases the pain reflection is more commonly into the neck or located in the region of the upper sternum. Myocardial disease, on the other hand, is more likely to be transmitted toward the ensiform cartilage, into the liver, or to other abdominal points, especially if preexisting inflammatory or painful foci exist, as in an inflamed gallbladder or appendix. Some degree of therapeutic suggestion is also conveyed by these various conditions; thus, digitalis is usually helpful in those cases caused by myocardial defect, whereas this drug fails to benefit in coronary instances, in which it may even aggravate the signs and symptoms. It is most important to recall that angina pectoris is not a disease entity but merely a symptom complex developed by varied pathologic changes.

DR. JOSEPH L. MILLER, Chicago: I would ask Dr. Herrick what the supposed action is of the psychic influence in pre-

cipitating the attacks. I would ask Dr. McCrae whether he thinks the lessening of the attacks after myocardial change is not more or less due to the restriction of the activities of the individual. The case Dr. Warthin cited reminds me of the description of syphilis in Europe in 1495. It was then called the great pox. We have thought that the type has somewhat changed because the race has acquired a certain degree of immunity.

DR. EMANUEL LIBMAN, New York: The etiology of coronary thrombosis is very important. In certain apparently infrequent cases, the thrombosis is of infectious origin, usually secondary to infection of the arterial wall. There is often a history of a previous cerebral thrombosis, or an obstruction of one or more of the arteries of the legs is found (not infrequently without a history of the thrombotic condition). There is, however, evidently a thrombotic tendency, a thrombophlebitis. In cases of chronic valvular disease and of chronic renal disease, there is a tendency in some patients to thrombosis, in others to hemorrhage. Canalizing vessels in a thrombus have little value in helping the blood supply, because they become narrowed or closed by atherosclerotic processes. In 1919 I suggested a method for the detection of thromboses of the right coronary artery which was reported on in 1925 by Professor Plettnev of Moscow. He found that an acute closure of the right artery causes a marked enlargement of the liver within twelve hours or less. It is important to note that only the acute hepatic enlargement is of value in diagnosis. In cases of infarction of the left ventricle, if aneurysmal dilatation develops and the septum is involved, there may occur a bulging to the right sufficient to obstruct the tricuspid valve and cause a marked enlargement of the liver. I believe that, on the whole, leukocytosis is the most valuable single evidence of thrombosis, especially in mild attacks. As to the pathogenesis of what is termed angina pectoris, we shall get further if we do not attempt to explain all cases by one mechanism.

DR. L. G. ROWNTREE, Rochester, Minn.: We undertook clinical and electrocardiographic studies, the latter inspired by the work of Dr. Herrick, to see whether there were any pathognomonic electrocardiographic observations to show whether the lesion was right sided or left sided. In several instances we were able to prove that the lesion was first on one side and then on the other.

DR. S. A. LEVINE, Boston: Of 145 cases of acute coronary thrombosis, forty-four came to autopsy. Among these there were nine sudden deaths from rupture, seven of which were instant deaths. There were other instant deaths which could not be explained by anything found in the heart. It would be only by a fortunate accident that we could prove that these patients died with ventricular fibrillation, which would explain accidental death. One in five died instantaneously with rupture. These patients previously had angina following thrombosis. Slight hypertension had existed before. Hypertension disappeared with the coronary thrombosis and did not recur. In the patients who became free from angina who had had hypertension before, if the hypertension recurred, the angina would recur with it. With regard to the effect of epinephrine in angina, it can be used sometimes as a diagnostic test but it throws little light on the real nature of the lesion. It can be used to reproduce angina, to test whether it is of biliary origin. Anger is another factor that stimulates the suprarenals and will achieve the same result.

DR. T. R. BROWN, Baltimore: Cholelithiasis is one of the causes that can produce anginal attacks. In one such case, treatment by surgery brought about complete cure of the attacks, with no recurrence.

DR. THOMAS MCCRAE, Philadelphia: In regard to the disappearance of the angina as the result of restricted activity, with that I can agree; but there may be something more than that. I have seen attacks precipitated in an angina patient by anger. In one such patient, a very bad tempered man, another car ran into his, and he started to curse the driver. His anger brought on an attack. After this patient had suffered an attack of thrombosis he had many fits of anger, but he had no more angina. I think that there are other factors than mere cessation of activity.

The Sympathetic System in Relation to Homeostasis

DR. W. B. CANNON, Boston: We are likely to think of ourselves as air inhabiting animals, but that is not true. We shut off air with mucosa or with horny dead skin, and the living parts are bathed in fluid. We inhabit a fluid matrix, and the internal environment of the organism is more and more brought under control in the process of evolution. The amphibian has no control of temperature, and thus the frog seeks the bottom of the pool. The frog, moreover, has no control of the water content of the body and if not kept moist would dry up and die. Reptiles control the water content of the body but have no control of temperature and the animal has to hibernate. Man has to manage his internal environment and to become independent of it. To gain this end he makes use of osmotic pressure, of plasma proteins and of regulation of the acid-base relationship.

This condition of constancy is known as homeostasis. It is maintained by a complex and elaborate physiologic mechanism, the relation of the sympathetic nervous system to the condition of constancy to the fluid matrix of the body. One example of this is the relationship of the blood sugar to insulin; another is the reaction of the sympathetic-suprarenal mechanism. The action of the suprarenal hormone is so strong that in the denervated heart one part in 1,400,000,000 parts of blood is sufficient to obtain a reaction. If dextrose is introduced, the suprarenosympathetic reaction is discontinued. This is the mechanism set at work when any hard muscle exercise is undergone, and the liver releases sugar to supply the needs of the organism. An animal with the sympathetics removed cannot have an increase of blood sugar even in excitement, whereas in the normal animal there is a 34 per cent increase when excited. With the sympathetic system absent, the animal loses its capacity to bring out sugar from storage.

In regard to sympathetic control of temperature, if this function were lost, an athlete after a three or four mile race would become so heated that he would die from effects of coagulation. He gets rid of heat by dilatation of the peripheral vessels and elaboration of sweat. One of our experiments has shown the result of sympathetic removal on one side, in the cat. On this side the animal has lost temperature control and fails to ruffle up its fur when put in a cold room. However, in two years it learned the trick of shivering excessively and so kept warm.

Another body mechanism is the protection against the development of acid. By means of oxygen the body changes a nonvolatile acid into a volatile one. This is effected by speeding up the circulation and thus speeding up oxygen carriage. The blood pressure is raised, the heart beats more rapidly, and the red corpuscles make more rapid trips from the lungs. Also more red corpuscles are released from the spleen by its contractions. All this is the response of the sympathetic system to hard exercise. All developments of human activity around us, among which may be classed the airplane and the skyscraper, are the extero-effects of this system which in turn tend to operate on the viscera and keep the internal activity fit to react on the extero-effective system.

Sensitiveness to Pain

DR. EMANUEL LIBMAN, New York: In order to test sensitiveness to pain I introduced a simple test, carried out by first pressing on the mastoid process as a control and then slipping the finger forward and pressing strongly in the direction of the styloid process. Individuals were classed as sensitive or hyposensitive. There appears to be a racial element in the reaction at the test point. Both sides should be tested if the side first examined is sensitive. If the second side is not painful, the patient must be classed for clinical purposes as hyposensitive. While the sensitive and the hyposensitive patient may present the same symptomatology in a given condition, the hyposensitive one is likely to present a different picture. In short, he is likely to feel less or no pain, and to have substitution symptoms, peculiar radiation of pain, and more reflex symptoms. Patients who come under observation with large abdominal tumors and a short history are usually undersensitive. Head zones are more valuable in the hyposensitive, and they stand larger operations under local anesthesia. One must distinguish between the feel of pain and the reaction to it. This reactivity or varying tolerance I call the X factor, because

there are many causes for a plus or minus reactivity. Sensitization and desensitization may be due to endogenic or exogenic causes, and may be local or general, or both.

Contralateral pains are characteristic of the hyposensitive and so are inverse radiations (to the focus, instead of from it). Induction of radiation and of substitution symptoms are of great importance in diagnostic studies. Investigations along these newer lines have been made in many diseases, especially those of the upper abdomen and of the heart. In cases of gastric and duodenal ulcer, hemorrhage, or perforation occurring with no history of the condition, or a short indefinite one, the patients are found to be hyposensitive. Pyloric stenosis due to ulcer, with no ulcer history, is usually found in the same type of individual. In cases of angina pectoris in the hyposensitive, there may be only mild pain, or a sensation of pressure, burning, constriction or the like. In cases of coronary artery thrombosis in the undersensitive, we may find no pain, but instead the symptoms just mentioned or vertigo, marked dyspnea or the like. The hyposensitive state explains "angina pectoris sine dolore." Dyspnea may be the most marked symptom instead of pain, in cases of coronary artery disease, or dyspnea may be felt at first and be replaced by the sensation of pain as the condition becomes more marked. Other symptoms, such as dyspnea or cough, need more detailed study. Such clinical investigations use what has been taught us by physiologists and pathologists and give new problems for them.

DISCUSSION ON PAPERS OF DRS. CANNON AND LIBMAN

DR. GEORGE KOBER, Washington, D. C.: I hope that Dr. Libman will study the relation of atmospheric conditions to pain, particularly in regard to neuralgic attacks preceding storms, the pain manifestations in amputated stumps, and the tender nerves in bunions, which are in evidence long before the approach of a storm. For many years this question has been taken up with the weather bureau, but so far there is no satisfactory explanation except possibly that of change in the atmospheric electricity. Excessive humidity might produce congestion and indirectly pain. Attacks of this sort might be relieved if we knew to what phenomena to attribute them.

DR. E. P. CARTER, Baltimore: I would like to ask whether Dr. Libman feels that colored people come under a racially hyposensitive group. It has been our impression in Maryland that there is less true angina pectoris among the colored people, and that they are also very refractory to the pressure test.

DR. LLEWELLYS F. BARKER, Baltimore: There are many different pain areas in the body which can be localized. The impression generally current is that stimulation of any sensory nerve root will cause pain, but that is not true. There are definite pain spots in the skin. The pain paths in the cord and interbrain are well known. I think we should definitely discriminate between pain and negative feeling tone. The latter is increased in manic-depressive and in psychoneurotic patients. In thalamic lesions almost any stimuli will be called pain, but it is really a negative feeling tone. The other nerves cannot feel and normal stimuli are called pain. We have the phenomena of hemianesthesias and analgesias through suggestion. The more one studies hypersensation and functional manifestations, the more one realizes that there must be central mechanisms that are involved in hysterical patients. Studies in epidemic encephalitis and in psychoneuroses show that patients are bothered by pains of central origin, whether due to inhibition of irritation of pain centers it is not known. I think the phenomena Dr. Libman has described should be called cerebral sensation.

DR. E. SEWALL, Denver: Dr. Cannon has anticipated other workers by a quarter of a century. He has demonstrated that clinical facts have a physical foundation. Dr. Cannon's work in the physiologic field has outlined the facts which Dr. Libman has described clinically. In Cannon's work the condition is called reflex, but the connection is apparent.

DR. JOSEPH A. CAPPS, Chicago: Dyspnea seems to be the substitute for pain in angina pectoris. I can recall thirteen cases. One of these patients had paroxysms of dyspnea and later died of coronary disease. This person was distinctly of the hyposensitive type. I think there must be something else concerned in this group. Cardiac pain in coronary disease is coincident with effort or excitement, but in other cases a paroxysm of dyspnea may occur when the patient is sitting quiet. This may go on till death. The mechanism is suggestive that there is some other factor at work.

DR. E. S. KILGORE, San Francisco: I should like to ask Dr. Libman why he chooses this particular way of testing for pain sensitiveness. Is that point more sensitive than other parts? It seems to me that the technic is difficult and pain might be elicited more easily in other places.

DR. EMANUEL LIBMAN, New York: My general impression regarding negroes is the same as that of Dr. Carter, but I have made no exact studies. Male Pueblo Indians seem to be markedly hyposensitive. I cannot reply in any authoritative way to Dr. Barker's remarks. My own feeling is that it has not been definitely proved that there are special nerve fibers for conducting pain. I am glad that Dr. Barker has emphasized central origins of pain because they not infrequently are of great significance. In reply to Dr. Capps, I wanted today only to draw attention to the substitution of subjective dyspnea for pain in angina pectoris. The general study of dyspnea according to the views given in my paper is highly necessary. I am sure that when Dr. Kilgore witnesses my application of the test he will agree that the point selected is a most convenient and practical one. He rightly says that there are many sensitive points available. I stated that, in patients in whom there is present an inflammatory or other condition at the points which I usually employed, others must be tested instead.

Detailed Observations on the Exposed Human Heart, with Electrocardiograms

DRS. C. C. STURGIS, F. N. WILSON and PAUL BARKER, Ann Arbor, Mich.: We have studied the electrocardiogram in ventricular extrasystoles and bundle branch block. Our first experiments were on dogs, but the observations at autopsy were inconstant and more or less indirect. We then tried experiments on the exposed human heart, using all leads and stimulating the heart directly. We used as a subject a young man with pneumonia of the left lung, with a clinically normal heart. The patient had developed a suppurative pericarditis for which a pericardostomy was performed. The heart was exposed twenty-one days. The patient died on the twenty-second day. The heart showed an organizing pericarditis. We were able to stimulate directly various parts of the heart. There were somewhat small, sharp auricular deflections when the contact was near the atrioventricular group. We were able to chart the ratio of the stimuli at the different parts of the ventricles. The early point is over the right ventricle over the large capillary muscle. The rate of the excitation was from 2,100 to 2,800 mm. per second at the Purkinje fibers; 1,100 to 1,200 on the auricular wall, and 200 mm. on the ventricular.

DISCUSSION

DR. B. S. OPPENHEIMER, New York: The results of these observations tend to clear up a difficulty we have had for twelve years. In 1917 I tried to correlate pathologic and electrocardiographic observations in cases of myocardial involvement and bundle branch block. We found discrepancies in the result. Three years ago, with Dr. Stewart of the Rockefeller Institute, I tried experiments on the human heart. This was in a thoracoplasty, and the heart was, of course, covered. I believe from the work of Dr. Barker that we succeeded only in stimulating the left ventricle; we never reached the right ventricle. That point will clear up the discrepancies in our results. The dog's heart is not comparable to the human heart. There is a difference in the chest wall and Purkinje fibers.

DR. E. P. CARTER, Baltimore: I have had four clinical cases of bundle branch block. If this is the accepted interpretation, we must reverse our clinical judgment that bundle block occurs more frequently in the right ventricle than in the left. Instances of right bundle block have been more common and of left bundle block comparatively infrequent. Left bundle block has always developed in the type of individual with a levogram. I think there is left ventricular preponderance. The electrocardiogram shows the spread of the wave of excitation in the plane of the lead, and interpretation has been based entirely on that theory in the presence of aortic insufficiency or greatly enlarged hearts. That left ventricular hypertrophy is not always characterized by these curves representing the

leads may be true. We have looked for reasons to explain the frequency of right bundle block with a dextrogram and the infrequency of left bundle block.

Sympathetic Ganglionectomy in Relation to Arthritis

DR. L. G. ROWNTREE, Rochester, Minn.: Dr. Kober spoke of the relation of pain to weather conditions. Sensitivity to pain is extreme in arthritis. The slightest changes of weather tend to increase pain. We have studied 367 cases of arthritis. The parallel was very marked between atmospheric pressure and the condition of the patient. We had one woman, aged 34, in whom life was unbearable on account of the pain. I suggested to Dr. Adson the release of the lumbar sympathetics. Previous to operation the patient was completely crippled; afterward she was able to walk twenty-two blocks. She said her legs and feet felt "cozy," whereas before they had been cold, clammy and useless. In this patient the hands were still useless, the fingers moist and clammy, with trophic changes. With the release of the sympathetics of the last cervical and first and second dorsal there was loss of pain, and the extremities became warm, pink and comfortable. There is a nervous influence in these cases which we have overlooked. This work opens up a field for therapy in arthritis, hitherto unexplored.

DISCUSSION

DR. W. B. CANNON, Boston: The sympathetic nervous system has been regarded as of the utmost importance to the organism. In our experiments we have removed this system in the cat and the dog without serious consequences. Monkeys, after sympathectomy, can jump about the cage and eat bananas as usual. In the sheltered life of the laboratory, animals do not seem greatly handicapped. When exposed, however, to cold and to the harder conditions of the outer world they feel the deficiency.

Course of the Disease in Different Types of Nephritis

DR. D. D. VAN SLYKE, New York: We have tried out a number of renal function tests to see whether we could find one that was sufficiently sensitive and yet simple and easily carried out. We have settled on the urea concentration test in the blood and the urine. What we call the blood urea clearance is a normal of 75 per cubic centimeter of blood per minute. In renal disease there is a shrinkage of volume of blood cleared by urea per minute. When the blood urea clearance comes down to 50, symptoms begin to be evident. It can go down to 10 per cent before uremia is shown. When the clearance is down to 20 per cent of the normal, the creatinine begins to be abnormally high. Hemoglobin is less than normal in the terminal cases. When the blood plasma proteins are above 5.5 per cent there is no edema, but below that edema occurs. We have studied three types of cases: (1) hypertension without hematuria; (2) edema without hematuria; (3) hemorrhagic or glomerular disease. During the acute stage of nephritis the blood clearance level may be maintained, and the shrinkage may occur later.

Nephrosis

DR. HENRY A. CHRISTIAN, Boston: Twenty-five years ago, Friedrich Mueller introduced the term nephrosis to indicate degenerative changes in the kidney instead of proliferative changes. The term nephrosis has been modified by the addition of such terms as "true," "lipoid" and "caseous." I have followed eighteen cases clinically that came to autopsy and were consistent with Friedrich Mueller's description. They were mostly in young people. Fifteen died of infection; eight had had pneumonia. The question was, Was the observed pathologic condition the result of a terminal infection? In some cases there were glomerular lesions with some degeneration and some proliferation. It seems reasonable that some of these patients must recover, and in many the lesions are obscured by the dye before autopsy. Others are not typical. There are also a large number of cases of mixed nephritis and nephrosis. There are two clinical features of nephrosis—excessive albuminuria and excessive edema. Another feature is the reversal of the albumin-globulin ratio in the serum. There is also a loss of plasma protein with lowered basal metabolism and hypoglycemia. The most probable cause of the protein deficit is the albuminuria. In these cases the glomeruli do not show much change but there is extensive degeneration of the tubules. The source of the albumin is through the walls of the blood vessels. It would seem, then, that nephrosis is the name of a syndrome and it may be a form of nephritis. There may be a lesion which will progress into the typical glomerular nephritis. The term "nephritis with edema" would describe this group. Syphilitic cases fit definitely into it. In 1836 Bright described decreased protein and shift in the globulin-albumin ratio. The only new factor noted is the decreased basal metabolism.

Clinical and Pathologic Studies on Nephrosis

DRS. S. B. WOLBACH and KENNETH D. BLACKFAN, Boston: At the Children's Hospital nine cases occurred in 100 cases of nephritis. Eight of these came to autopsy. They showed the criteria stated by Dr. Christian, but no case presented glomerular lesions. There were varying degrees of degeneration of the tubules. There was cicatricial repair due probably to tubular lesions. Doubly refractive lipoid was found in the blood in all cases. We examined the cases to see whether they were due to infection or to other causes. There were striking coincidences in the histories. Examination of the thyroid showed similarities to those of children dying of malnutrition. The thyroid, liver and kidney showed marked colloid depletion. There is some relation of this thyroid change to the nephritis. We are inclined to believe that the condition of the kidney, especially in children, is not the essential thing and that any term connecting the kidney with this disease is a misnomer.

DISCUSSION ON PAPERS OF DR. CHRISTIAN, AND DRS. WOLBACH AND BLACKFAN

DR. FRANKLIN C. MCLEAN, Chicago: Without attempting to deny other lesions, I wish to say that there is something wrong with the kidney in this disease. I injected gum acacia to modify the blood plasma. This must be split into pentose to be excreted. Gum acacia appeared in the urine in large concentration. It had all left the circulation. There must be increased permeability of the kidneys to such large molecules as are represented by gum acacia.

DR. EMANUEL LIBMAN, New York: Dr. Wolbach has presented evidence indicating that the changes in the tubules are not simply terminal. If Dr. Christian is correct in his view that the degeneration is terminal, the fundamental principle of Epstein that the disease is primarily a general one would have still further proof in its favor. My experience is the same as Dr. Christian's, that the condition is an infrequent one, being more often found in association with diffuse glomerular nephritis. It is of interest that Drs. Blackfan and Wolbach could present a study of six cases today. Dr. Paul Klemperer has encountered at postmortem examinations in a large material in more than two years only two cases of what he is willing to designate as nephrosis. One was in a child that suffered from four attacks of pneumococcal infection of the ascitic fluid, the fourth being fatal. The other one was that of an adult suffering from the syphilitic nephrosis to which Dr. Christian has referred. Of great interest are the changes in the thyroid found by Dr. Wolbach. They would be especially significant if they proved not to be secondary. Dr. Epstein has always believed in an endocrine factor in the disease and has stressed the probable rôle of the thyroid. As regards nomenclature, the name nephrosis or lipoid nephrosis can well be used for the present as designating the disease studied by Dr. Epstein. The name which he suggested, diabetes albuminuricus, has already been adopted by some German writers on renal disease as a synonym.

DR. WILLIAM H. WELCH, Baltimore: This meeting is somewhat commemorative of the founders of the association. My first contribution was on glomerular nephritis. The same questions were under discussion then as there are under discussion now. I believe I introduced the term "glomerulitis" in that paper. I am glad to have heard Dr. Wolbach use the term capillary desquamation, that is, desquamation of the epithelium from the convoluted tubule into the spaces between the glomeruli, or Bowman's capsule. I agree with Dr. McLean that one should accept the term nephrosis without believing that there is some damage to the kidney. The real problem is not why there is albumin but why there is not always albumin. The capillaries of the kidneys are the only ones that hold back albumin. The real problem is that the glomerular capillaries are really *sui generis*.

(To be continued)

Current Medical Literature

AMERICAN

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*Relationship Between Serum Calcium and Age. E. M. Greisheimer. O. H. Johnson and M. Ryan, Minneapolis.—p. 704.
*Mercurochrome as Biliary Antiseptic, as Means to Visualize Gallbladders and as Possible Form of Treatment in Cholecystitis. L. Martin and J. H. Hill, Baltimore.—p. 710.

Fulminating Meningococcus Septicemia Without Meningitis.—The remarkable feature of the case reported by Middleton and Duane was the extreme intensity of the meningococcus septicemia. The patient died about fifteen and a half hours after the onset of the illness. A strikingly low blood sugar value and marked hypotension seem well accounted for by the bilateral hemorrhagic destruction of the suprarenals discovered at necropsy. The total absence of suprarenal secretion, with resulting failure of carbohydrate mobilization and vasomotor control, may well have been the immediate cause of death.

Leukosarcoma.—Flashman and Leopold report the case of a man, aged 60, who gave a history of a swelling in the right inguinal region for twelve months. A biopsy showed lymphosarcoma. A roentgenogram revealed a tumor in the pelvis. The leukocyte count was normal. He was given roentgen treatments for from four to five months, during which time several examinations of the blood were negative. In the following month he developed a leukemia, the white blood count rapidly increasing to 444,000 cells per cubic millimeter at the time of death and the differential blood count showing from 90 to 96 per cent small lymphocytes. The autopsy revealed a primary, invasive lymphosarcoma in the inguinal and retroperitoneal regions; an extensive involvement, resembling leukemia, of most of the lymphoid system, liver, spleen and bone marrow of the right femur, and metastatic nodules in most of the organs. In the tissues there were both large lymphoblasts and small lymphocytes, with intermediate types and in various combinations, indicating that these cells represent different degrees of hyperplasia or differentiation. The picture appears intermediate in character between typical lymphosarcoma and lymphatic leukemia, rather than a combination of two separate entities. The case falls in the group of leukosarcoma.

Changes in Eye in Leukemia.—In 138 examinations in cases of leukemia by Borgeson and Wagener, retinal lesions were found in 70 per cent of the acute cases and in 63 per cent of the chronic cases; in 87 per cent of the myelogenous type, and in 34 per cent of the lymphatic type. The most common picture found was that of engorged veins associated with hemorrhagic areas and with exudates of deep nodular or superficial cotton-wool type. It is found in acute and chronic cases of both lymphatic and myelogenous types. Leukemic retinitis showing, besides other lesions, definite leukocytic infiltration into the retina and choroid along the line of the retinal veins, was found in this series only in cases of chronic myelogenous leukemia. In all cases it was associated with a high leukocyte count and with a relatively high percentage of immature leukocytes in the blood. In acute leukemia, the retinal lesions are due mainly to the anemia. In chronic myelogenous leukemia, the main factors in the cause of retinal lesions are anemia and the high percentage in the blood of immature leukocytes of the myeloblastic type. In chronic lymphatic leukemia, the main factor in causing the retinal lesions is the associated anemia. A high percentage of immature lymphocytes may be a factor in certain cases. In myelogenous leukemia, hemorrhage in the retina is more common than in the skin, subcutaneous tissues, and mucous membranes. In lymphatic leukemia the reverse is true. Retinal lesions may be seen in leukemia as early as three weeks after the onset of symptoms, and a normal fundus may be found as late as ten years after the initial symptoms of the disease. In chronic leukemia the average subsequent length of life was considerably less in patients with retinal lesions than in those with a normal fundus at the time of the first examination. In one case of chronic leukemia, marked improvement in the retinal lesions and considerable improvement in the general physical condition followed treatment with radium. Infiltration of the lids and orbit and subconjunctival ecchymosis and ecchymosis of the lids are relatively infrequent in leukemia. Pupillary and visual field changes as a result of leukemia are rare. Definite reduction of vision was present in only 8 per cent of the cases of leukemia.

Sclerosing Treatment of Varicose Veins by Chemical Irritants.—Logefeil and Dahlstrom believe that the method of induced sclerosis is the method of choice in the majority of cases of varicose veins, and that invert sugar is the preferable agent for inducing the phlebosclerosis. They believe this method of treatment is better than surgery for the following reasons: The danger of embolism is less; the cost to the patient is less; the amount of pain is less; there is no scar formation; recurrences are less frequent, and the patient is not confined to bed.

Relationship Between Serum Calcium and Age.—Greisheimer et al. conclude from their studies that there is no statistically significant difference in the mean calcium content or in the intensity of correlation of calcium content with age in the two sexes.

Mercurochrome as Biliary Antiseptic.—After oral administration of mercurochrome to the point of salivation in thirteen persons, Martin and Hill noted that the bile was never bactericidal or inhibitory and never contained visible traces of the dye. The treatment had no alleviating effects on the symptoms of eight persons with cholecystitis. Following intravenous injection of mercurochrome in man, the dye may be demonstrated in the bile siphoned out through a duodenal tube in from eighteen to twenty-three minutes. This bile is bactericidal and contains mercury. From eighteen to twenty hours after intravenous injection, mercurochrome may be obtained by duodenal drainage. It apparently can be stored in the gallbladder. This bile is bactericidal and contains mercury. Eight patients with cholecystitis have received mercurochrome intravenously. Three were not helped; five were clinically cured and specimens of their bile were sterile. The gallbladders of dogs contain mercurochrome eighteen hours after intravenous injection. This bile contains mercury and is bactericidal. Because of storage of mercurochrome in the gallbladder, it is possible to obtain its shadow in roentgenograms.

American J. Ophthalmology, Chicago

12: 361-452 (May) 1929

Changes in Refraction of Eye. E. Jackson, Denver.—p. 361.
Levoglaucosan (Linksglaukosan) and Aminglaucosan. E. C. Ellett and R. O. Rychener, Memphis, Tenn.—p. 368.
Pigmentation of Roots of Cilia Caused by Acarus Demodex Folliculorum. F. B. Blackmar, Columbus, Ga.—p. 373.
Congenital Unilateral Paralysis of Motor Oculi. C. W. Rutherford, Iowa City.—p. 376.
Congenital Bilateral Anophthalmos: Case. A. L. MacLean, Baltimore.—p. 381.

Affections of Eye in Leprosy. A. R. Crebbin, New Orleans.—p. 384.
Which Children Should Attend Sight-Saving Classes? M. Bartels.—p. 387. (Translation by P. C. Kronfeld, Chicago.)
Who Should Refract? P. Meyer, Buffalo.—p. 392.
Mydriasis from Jimson Weed Seed. J. M. Patton, Omaha.—p. 394.
High Hyperphoria with Violent Headache, Corrected by Tucking. G. O. Ring, Philadelphia.—p. 396.
Amaurosis Fugax and Thrombosis. W. F. Swett, San Francisco.—p. 397.
Melanosarcoma of Choroid. L. L. McCoy, Seattle.—p. 399.

American J. Roentgenol. & Rad. Therapy, New York

21: 313-420 (April) 1929

Radiosensitive Epidermoid Carcinomas. J. Ewing, New York.—p. 313.
Treatment of Cancer of Lip and Mouth. D. Quick, New York.—p. 322.
Indications for Radiation Therapy in Benign Uterine Hemorrhages. H. Schmitz, Chicago.—p. 327.
Treatment of Uterine Fibroids; Use of Radium. W. Neill, Jr., Baltimore.—p. 332.
Treatment of Hemorrhage from Nonmalignant Uterus. O. L. Norsworthy, Houston, Texas.—p. 336.
Detection and Estimation of Radium and Mesothorium in Living Persons. H. Schlundt, Columbia, Mo., H. H. Barker and F. B. Flinn, New York.—p. 345.
Roentgenologic Consideration of Endothelial Myeloma. B. R. Kirklin and H. M. Weber, Rochester, Minn.—p. 355.
Marble Bones with Pathologic Fractures: Case. A. S. Merrill, Manchester, N. H.—p. 361.
Benign Sclerosing Central Giant Cell Tumor: Case. J. R. Carty, New York.—p. 363.
Mediastinal Cyst Causing Obstruction of Bronchus: Case. E. C. Vogt, Boston.—p. 364.
Lithopedion: Case. P. F. Butler, Boston.—p. 365.
Anencephaly: Case. C. H. Jennings, Fitchburg, Mass.—p. 366.
Improved Enema Tip. E. C. Vogt and W. H. Lee, Boston.—p. 372.

Annals of Surgery, Philadelphia

89: 641-800 (May) 1929

*Bacillus Welchii (Perfringens) Antitoxin in Experimental General Peritonitis and Intestinal Obstruction. G. H. Copher, C. S. Stone and H. R. Hildreth, St. Louis.—p. 641.
*Rôle of Bacillus Welchii in Acute Intestinal Obstruction. M. A. McIver, J. C. White and G. M. Lawson, Boston.—p. 647.
*Clinical Findings in Subtotal Gastrectomy. C. J. MacGuire, New York.—p. 658.
Uretero-Enteroventral Fistula: Case. F. W. Rankin and C. Mayo, 2nd., Rochester, Minn.—p. 669.
*Extensive Resections of Small Intestine. A. G. Brenizer, Charlotte, N. C.—p. 675.
Diagnosis of Primary Neoplasms of Renal Pelvis. L. Herman and L. B. Greene, Philadelphia.—p. 682.
*Primary Epithelioma of Vulva: Seventy-One Cases. C. B. Rentschler, Rochester, Minn.—p. 709.
Osteomyelitis of Vertebrae. A. O. Wilensky, New York.—p. 731. (Cont'd. from page 570.)
Carpal Osteitis: Eight Cases. H. C. Blair, Portland, Ore.—p. 748.
Fracture of Carpal Scaphoid. R. V. Grace, New York.—p. 752.

Bacillus Welchii Antitoxin in General Peritonitis and Intestinal Obstruction.—Although there is some disagreement among clinical and experimental investigators regarding the exact nature, mode of formation and action of toxic substances concerned with ileus and intestinal obstruction, it is the belief of Copher et al. that anaerobic, as well as aerobic, bacteria play a rôle in the production of the toxemia found in the two conditions. This belief is substantiated by the fact that life was prolonged in the experimental series of dogs having acute general peritonitis and acute intestinal obstruction by the use of *Bacillus welchii* antitoxin. The average prolongation of life in the group of animals suffering with general peritonitis which were treated with antitoxin over the control group which did not receive treatment is not long. However, the results obtained in the second group of experiments are more suggestive of a therapeutic efficacy for *B. welchii* antitoxin in the treatment of acute intestinal obstruction. The average duration of life of 2.3 days in this control series was increased by the early administration of antitoxin to 4.6 days in the experimental series. It may be significant that in the group with intestinal obstruction in which *B. welchii* antitoxin was most efficacious, *Bacillus welchii* was most frequently recovered from cultures made from the loops of intestine. Definite prolongation of life in this series began when the time of injection of the antitoxin was changed from the day following the operation to the day of operation.

Rôle of Bacillus Welchii in Acute Intestinal Obstruction.—The type of obstruction used in the experiments made by McIver et al. was a closed loop of intestine with its veins ligated; the cat was used as the experimental animal. *Bacillus welchii* was found in enormous numbers in the obstructed loop. For the most part these consisted of avirulent or relatively avirulent strains. The cat is relatively immune to *B. welchii* toxin, although readily succumbing to the toxemia of the type of obstruction here considered. The authors were unable to demonstrate that the administration of *B. welchii* antitoxin prolonged the life of the animals.

Clinical Observations in Subtotal Gastrectomy.—Reviewing the results in seventeen cases, MacGuire concludes that after recurrent ulcers of the stomach or duodenum and after marginal or secondary jejunal ulcers, the polya operation offers a reasonably safe and satisfactory method of relief from chronic invalidism. As far as can be determined by roentgen ray and by the Ewald test meal, subtotal gastrectomy establishes and maintains a very rapid emptying of the stomach with marked diminution or disappearance of free hydrochloric acid in proportion to the amount of stomach removed.

Extensive Resections of Small Intestine.—Brenizer reports a case in which he resected 9½ feet of ileum, leaving about 6 feet of ileum and jejunum behind. A lateral anastomosis was done between the ileum and cecum. The after-course was uneventful: Proctolysis and liquids were given for the first four days, followed by a semisoft diet for six days and a soft diet for the remainder of the three weeks in the hospital. The wound scarcely drained at all for five days. At first there were five or six stools a day, then two or three stools a day for six weeks. The patient returned for examination in three months, having eaten, after six weeks, practically a full diet. His weight had increased from 102 to 172 pounds (46.3 to 78 Kg.).

Primary Epithelioma of Vulva.—Seventy-one cases of primary epithelioma of the vulva are reviewed by Rentschler. Forty-five patients are dead. All of these except one died from carcinoma. The remaining seventeen patients of the series are still living. Of these, thirteen are free from recurrence after an average duration of seven and seventy-seven hundredths years. One patient had recurrence after eight years, one after four years, and one within less than a year after operation. Therefore, the prognosis is fair for prolongation of life, but poor for cure and would seem to be in direct proportion to the grade of malignancy.

Archives of Dermatology and Syphilology, Chicago

19: 713-866 (May) 1929

*Occurrence of Monilia in Relation to Psoriasis. M. Wachowiak, G. V. Stryker, J. Marr, H. Bock and M. S. Fleisher, St Louis.—p. 713.
*Sclerema Neonatorum. J. Skeer, New York.—p. 732.
Wassermann Reaction as Routine Test in Hospital Practice. D. H. Nickson and F. J. Leibly, Seattle.—p. 737.
*Early Syphilis: 444 Cases. L. Chargin and A. Stone, New York.—p. 750.
*Granuloma Inguinale. I. M. Gage, New Orleans.—p. 764.
Purpura Annularis Telangiectodes (Majocchi's Disease): Case. M. Scholtz, Los Angeles.—p. 769.
Primary Multiple Sarcomatosis of Skin. W. C. Hueper and B. B. Beeson, Chicago.—p. 794.
*New Monilia-Like Fungus. C. H. Thienes, Portland, Ore.—p. 800.
Ischemia of One Finger. R. V. Quinlan, Meriden, Conn.—p. 807.
Louis Brocq, 1856-1928. B. B. Beeson, Chicago.—p. 808.

Occurrence of Monilia in Relation to Psoriasis.—Wachowiak et al. feel that *Monilia* is in some way related to psoriasis. The mechanisms by which *Monilia* might act in causing psoriasis are various. Wachowiak et al. suggest that if *Monilia* is a causative agent in psoriasis, it possibly first lodges in the intestinal canal; then a general sensitization results by absorption of the organisms or their products, and the local lesions are the result of lodgment of *Monilia* in previously sensitized skin. As an alternative they suggest that possibly the lesions may be the result of a hematogenous infection, with lodgment of the organisms in the capillaries of the areas of predilection; here local or general sensitization may not play any part, and only the chance entrance of *Monilia* from the intestinal canal into the blood stream and the local condition in the skin (nutritional or vascular) would lead to the appearance of the lesions. It may be that *Monilia* does not represent a primary factor in connection with psoriasis but is only a secondary factor, or possibly even only a concomitant parasite associated with some other actual causal factor. Thus, it may be that another factor, either constitutional (metabolic or related to the glands of internal secretion) or infectious,

plays a primary rôle in psoriasis, but that infection with *Monilia* is superimposed on this primary condition and *Monilia* acts as a factor in continuing the lesions. Or, again, it might be possible that the factor or factors which actually cause psoriasis also bring about or are associated with conditions in the body, possibly particularly in the intestinal canal, which permit *Monilia* to lodge in and become a permanent inhabitant of the intestines. In this case, *Monilia* might not be actually related to the disease and would possibly not have a causal rôle in the production of lesions. In this case it would be difficult to explain the presence of *Monilia* in the scrapings from the skin.

Sclerema Neonatorum.—Skeer asserts that his is the first case in which cure has resulted from roentgen therapy. A search through all the available literature failed to reveal a similar report.

Early Syphilis.—Of 444 patients with early syphilis who were treated intensively with arsphenamine, mercury and bismuth, a total of 60 per cent were apparently cured, assert Chargin and Stone. The greatest number of cures, amounting to 90 per cent, was obtained in the primary seronegative group. In both the primary seropositive and the early secondary groups, the number of probable cures was 61 per cent. Delay in treatment beyond the third or fourth month reduced the probable cures to 45 per cent. The best results were apparently obtained with the intensive plan of treatment (Scholtz, Pollitzer and others). The other plans of intensive therapy gave results which did not materially differ one from the other. Intensive therapy with rest periods between courses apparently yielded as good results as treatment by the continuous plan. Because of greater safety and expediency, the former would appear to be the method of choice in routine treatment. A number of the patients were apparently cured after one or two courses. Since, however, it is impossible to judge *a priori* how a patient with a given condition will respond to therapy, it is advised that prolonged intensive treatment be given to all patients with early syphilis.

Granuloma Inguinale.—Gage has been successful in obtaining in pure culture an organism from a case of granuloma inguinale which has all the staining qualities, both by Gram's and by Wright's stain, and the morphologic characteristics of the Donovan body. The culture was obtained from a case of granuloma inguinale occurring in a negro. The duration of the disease was five years. The organisms were grown on Sabouraud's culture medium, aerobically, at 39 C.

New Monilia-Like Fungus.—A new fungus is described by Thienes which is considered to be the etiologic agent in an occupational dermatosis among workers in canneries. Although closely resembling *Monilia*, or *Parasaccharomyces*, the organism cannot yet be definitely classified.

Archives of Ophthalmology, Chicago

1: 435-550 (April) 1929

Formation of Aqueous Humor. A. M. Yudkin, New Haven, Conn.—p. 435.
Akinesis During Cataract Extraction. C. S. O'Brien, Iowa City.—p. 447.
Intra-Ocular Tension Following Puncture of Anterior Chamber. P. C. Kronfeld, Vienna, Austria.—p. 450.
Embolism of Several Branches of Arteria Ophthalmica. E. Waldstein, New York.—p. 459.
Acute Hypotony in Retinal Detachment. M. N. Beigelman, Los Angeles.—p. 463.
Etiology of Sympathetic Ophthalmia. S. R. Gifford, Omaha, and L. H. Lucic, Cheyenne, Wyo.—p. 468.
Entoptic Phenomenon of Blue Arcs. P. A. Snell, Rochester, N. Y.—p. 475.
Ring Abscess of Cornea. S. R. Gifford and C. E. Hunt, Omaha.—p. 494.
Ocular Residua and Sequelae of Epidemic Encephalitis. A. Barlow, Philadelphia.—p. 501.

Archives of Physical Therapy, X-Ray, Radium, Omaha

10: 139-188 (April) 1929

Effect of Ultraviolet Rays in Experimental Rickets: Lime Depositing Capacity of Light. C. Sonne, Copenhagen, Denmark.—p. 139.
*Use and Abuse of Physical Therapy in Management of Chronic Arthritides. W. C. Stoner and L. S. Brookhart, Cleveland.—p. 149.
*Ultraviolet Therapy in Pediatrics. R. H. Kuhns, Chicago.—p. 154.
*Method of Controlling Destructive Action of Roentgen Ray on Living Tissue. A. P. Evans, New York.—p. 158.
Diagnostic Errors as Cause for Many Poor End-Results with Physical Therapy. J. Brams, Chicago.—p. 168.
Use of Radium in Treatment of Vernal Conjunctivitis. I. W. Riggins, Indianapolis.—p. 174.

Use and Abuse of Physical Therapy in Management of Chronic Arthritides.—In a series of 140 cases of chronic arthritis, Stoner and Brookhart state that physical therapy, including baths, massage, ultraviolet ray and diathermy, was used with considerable disappointment in certain cases. Diathermy, while occasionally of value, more often is disappointing and in the more acute manifestations seems to be contraindicated. In the treatment of this group of 140 cases effort was made to improve the general health, and effort was made to have the patient adjust his life to the demands of the disease. A relatively low carbohydrate diet was advised in most cases with a low caloric intake in the obese. Rest, avoidance of exercise and encouragement of elimination was a routine in all cases. Drug therapy consisted of the salicylates, cinchophen, iodides and amiodoxyl benzoate; in the obese with a low metabolic rate, thyroid extract was judiciously administered. Colonic irrigations were used as a routine. The results of treatment were as follows: marked improvement in nineteen; definite improvement in eighty-six; no improvement in eleven, and questionable improvement in fourteen in which at times there was improvement and then relapse.

Ultraviolet Therapy in Pediatrics.—At the Children's Memorial Hospital in Chicago the quartz lamp has been used for some time and the results have been quite satisfactory. In addition to being used in rickets and other deficiency diseases of infancy and childhood, it is employed in tuberculous sinuses and glands. Kuhns asserts that great precautions are taken in the use of the light. No child is treated if the temperature is 100.6 F. or over, or if the skin shows a rash or desquamation. The eyes are bandaged during the treatment. Children with tuberculosis are always treated one at a time and after the irradiations to the other children are finished.

Controlling Destructive Action of Roentgen Ray on Living Tissue.—The roentgen ray does not have any effect so long as it is in motion. Only at the point at which its progress is arrested are electrical and physical effects brought about. At this point of arrest, the ray liberates negative electrons (cathode particles) which tend to suspend the activity of the positively charged particles which lie in the immediate vicinity. Evans believes that both the therapeutic and the destructive action of the roentgen ray on living tissue are due to its capacity to liberate cathode particles at the point at which its progress is stopped. It seems obvious that to prevent or minimize the destructive effects of the roentgen ray in living tissue, some means must be had of restricting the activity of these released negative electrons, or of overcoming or neutralizing the negative charge they carry. He has obtained this result by using Guillemiont's oscillating circuit. The circuit used by Evans is essentially the early wireless sending set with a large capacity transformer and a large condensor in place of the induction coil and small condensor. The addition of these units give the circuit the capacity to cause tissue effects of great magnitude. Experiments and personal observations are reported.

Association Amer. M. Colleges Journal, Chicago

4: 97-192 (April) 1929

Report on Applications for Matriculation in Schools of Medicine of United States and Canada, 1928-1929. B. D. Myers, Bloomington, Ind.—p. 97.
*Premedical Education from Standpoint of Liberal Arts College. W. Shumway, Urbana, Ill.—p. 111.
Arts-Medical Courses. J. W. Pryor, Lexington, Ky.—p. 116.
*Cooperative Plan in Medical Education; Four Years' Experience. N. Evans, Loma Linda, Calif.—p. 135.
Impressiveness in Medical Teaching. L. B. Wilson, Rochester, Minn.—p. 146.
Status of Functional Pathology in Medical Curriculum. G. T. Pack and C. Brooks, Tuscaloosa, Ala.—p. 160.

Premedical Education from Standpoint of Liberal Arts College.—Shumway suggests two solutions to the problems of premedical education. The first is that the number of years of college work be increased from two to three or even four years, as has been done in many other colleges of medicine. Opposed to this proposal are many economic and some educational arguments. There is a constantly growing pressure on the medical colleges to reduce the total amount of time necessary to prepare the physician for his profession. A

minimum of two years in college, four years in medical school, and one year in the hospital represents a sufficiently long period of preparation for any profession. In the opinion of many deans of medical colleges, the student who spends four years in college loses something of the freshness and enthusiasm with which a new subject should be taken up. Some even claim that the bachelor of arts has acquired habits of laziness, dilettantism, and the ability to hide a superficial knowledge with a plethora of words. And while in some endowed institutions it may be practicable to require a college degree before commencing the study of medicine, it is incumbent on state supported institutions to receive new students as fast as they shall have completed the minimum requirements for entrance. The other solution which has been suggested is to reduce the number of hours in the strictly scientific subjects of the premedical curriculum and to substitute therefor as much of the general group requirements of the college as may be practicable. It is surely not necessary for a medical student to have taken from eight to fifteen hours of zoology in order to appreciate the structure and functions of the human body. It is hardly necessary for a student to have taken from twelve to fifteen hours of chemistry to have some notion of the complexities of chemical combinations and chemical changes in physiology and therapeutics. Nor should it be necessary for a student to take ten hours of physics and two hours of trigonometry to acquire a notion of mechanics and the ways of light, heat and electricity. Furthermore, the minimum prescription of one year of German or French is neither sufficient to insure a reading knowledge of the language nor requisite for the average student or practitioner of medicine. If a little relief could be secured in these departments, the planners of the college curriculum would have then the opportunity of introducing something similar to their group requirements in literature, the social sciences, and psychology, which they hold necessary to the development of their graduates. This may not represent an ideal solution of the problem which confronts both the college of medicine and the liberal arts college. It does, however, still permit of a medical preparation geared to the point at which the student may come earlier and fresher to his medical studies, with the ability to think clearly and accurately and with an understanding of the implications of a new subject both scientific and human. It will open to the prospective physician a wider and fuller world in which he may find the opportunity for growth and refreshment in his maturer years.

Cooperative Plan in Medical Education.—The cooperative plan of education described by Evans, as applied to the medical course, is an effort to make the training of the medical student, from the first, more practical and effective by placing him in contact with patients, physicians and nurses, and making him an actual economic part of a medical institution or organization. This is accomplished by providing him employment in such institutions throughout the first and second years of his course, during alternate months. The actual mechanism of the plan is that the class of which the student is a member is divided in two equal groups or sections, each student being paired with a student in the other section. Each of these pairs of students accepts the responsibility of carrying on continuously a given job which otherwise would be handled by a full time employee in the institution in which they work. Thus, each medical student, during his first two years, spends one month in regular class work and the following month in his hospital job, alternating in this fashion throughout the two years. The plan entails a repetition of all the class and laboratory instruction of the first two years of the course. The schedule covered with section I is repeated the following month for section II. Section I then returns to school and the instruction proceeds from the point at which it has been discontinued one month previously. The students' practical medical work is done in numerous hospitals, sanatoriums, laboratories and physicians' offices in Los Angeles and southern California. All of these employ the students with a full knowledge of the alternating arrangement and of the fact that the student's work is a part of his medical education. The types of work which the medical students do are such as pertain to the care and examination of patients—such work as is usually done by nurses, orderlies, laboratory technicians, interns or even physicians. Two important features of the plan which are intended as a means of enhancing the educational value of the work of the practical months are: (1) the writing of themes on subjects related to the work being done in the hospitals; (2) the conducting of so-called coordination classes. The cooperative plan is proving of value in furnishing an effective means of stimulating the student's interest in his studies, in providing a more practical medical training, and in giving a saner concept of the practice of medicine during his years of training.

Delaware State M. Journal, Wilmington

1: 53-71 (April) 1929

Some Emergencies of Diabetes and How to Treat Them. O. H. Petty, Philadelphia.—p. 53.
Angina Pectoris and Coronary Occlusion. O. S. Allen, Wilmington.—p. 57.
Uses of Vital Statistics. A. T. Davis, Dover.—p. 60.

Illinois Medical Journal, Oak Park

55: 305-380 (May) 1929

What I Have Learned in Doing Sixty Cesarean Sections. J. H. Bacon, Peoria.—p. 339.
New Applicator for Radium Treatment of Cervical Cancer. H. Swanberg, Quincy.—p. 347.
Indications for Blood Chemistry. C. R. Smith, Decatur.—p. 350.
Radiologic Studies of Anatomic Variations Observed in Symptomless Spine. B. C. Cushway and R. J. Maier, Chicago.—p. 355.
Significance of Anatomic Variations of Symptomless Spine from Surgical and Industrial Standpoint. W. H. Bohart, Chicago.—p. 356.
Biologic Effects of Roentgen Ray. C. S. Bucher and R. S. Funk, Champaign.—p. 362.
Carcinoma of Pancreas. C. U. Collins, Peoria.—p. 366.
More Common Diseases of Anus and Rectum. P. F. James, Peoria.—p. 369.

Journal of Industrial Hygiene, Baltimore

11: 107-138 (April) 1929

Cost of Free Advice: Tuberculosis in an Industrial Group. E. W. Phillips, Phoenix, Ariz.—p. 107.
Nervous Illness in Industry. M. Culpin, London, England.—p. 114.
Lead Absorption and Compensation. M. R. Mayers, New York.—p. 124.

Journal of Infectious Diseases, Chicago

44: 257-335 (April) 1929

Rocky Mountain Spotted Fever. R. R. Spencer, Washington, D. C.—p. 257.
Special Observations on Morphology of Coccidioides Immitis. F. E. Ahlfeldt, Philadelphia.—p. 277.
Significance of Certain Reactions Induced by "Resting Bacteria." A. I. Kendall and M. Ishikawa, Chicago.—p. 282.
*Fatal Septicemia in Man Due to Bacillus (Salmonella) Suipestifer. J. T. Bauer and M. McClintock, Philadelphia.—p. 292.
Effect of Multiple Injections of Different Materials on Reticulo-Endothelial System and on Immunity Response. K. M. Howell and D. A. Beverley, Chicago.—p. 298.
Hypersensitiveness to Diphtheria Bacilli: Quantitative Correlation of Responses to Diphtheria Culture Filtrate and Ragweed Pollen Extract in Sensitized Skin. J. M. Neill and W. L. Fleming, Nashville, Tenn.—p. 308.
Id.: Lack of Correlation Between Responsiveness to Histamine in Normal Skin and to Specific Antigens in Sensitized Skin. J. M. Neill, W. L. Fleming and L. V. Richardson, Nashville, Tenn.—p. 321.
*Significance of Postmortem Bacteriologic Examination. E. Z. Epstein and M. A. Kugel, New York.—p. 327.

Fatal Septicemia in Man Due to Bacillus Suipestifer.—The case reported by Bauer and McClintock indicates the necessity of considering *Bacillus suipestifer* as an agent in the production of febrile conditions simulating typhoid, especially when organisms of the paratyphoid group are isolated from the blood and all agglutinations with stock strains of *B. typhosus* and *B. paratyphosus* A and B fail. The source of the infection remained undetermined.

Significance of Postmortem Bacteriologic Examination.—In bacteriologic investigations made by Epstein and Kugel at necropsy in sixty-six blood cultures and sixty-two bone marrow cultures, at least one organism was always present. Of forty-two heart muscle cultures, five were sterile, and of forty-three valve cultures, four were sterile. Streptococci of all kinds were isolated in 79 per cent of the cultures of the blood; in 67 per cent of cultures of the bone marrow; in 47 per cent of cultures of the heart muscle, and in 40 per cent of cultures of the normal valves. Nonhemolytic streptococci were found in blood, bone marrow, heart muscle or valve in 86 per cent of the cases. The infrequency of the pneumococcus, streptococcus beta and anaerobic organisms was observed. A strikingly high

percentage of nonhemolytic streptococci tested were identified as enterococci. It seems that no significance can be attached to the recovery at necropsy of such organisms as streptococcus alpha, streptococcus gamma, enterococcus, *Staphylococcus aureus*, *Bacillus coli* and *Bacillus pyocyaneus* unless the same organism has been found during life.

Journal of Pharmacol. & Exper. Therap., Baltimore

35: 321-470 (April) 1929

Action of Some Tertiary Amines Related to Ephedrine. F. R. Curtis, London, England.—p. 321.
Sympathomimetic Action of Ephedrine. F. R. Curtis, London, England.—p. 333.
*Pharmacology and Toxicology of Some New Organo-Mercury Compounds. S. J. Cohen, Chicago.—p. 343.
Effect of Methylguanidine on Blood Pressure of Suprarenalectomized Dogs. R. H. Major and C. J. Weber, Kansas City, Kan.—p. 351.
Morphine Habituation: Tolerance to Stimulant Action of Morphine. H. Gold, New York.—p. 355.
*New Method of Estimating Potency of Digitalis: Pigeon Emesis. P. J. Hanzlik, San Francisco.—p. 363.
*Results with Pigeon Emesis Method of Estimating Probable Therapeutic Dose of Digitalis. P. J. Hanzlik and A. B. Stockton, San Francisco.—p. 393.
*Treatment of Experimental Tuberculosis with Organic Gold and Copper Compounds: I. Ethylenethiocarbamide Derivatives. W. E. Dixon and J. C. Hoyle, Cambridge, England.—p. 409.
Relation of Arsenicals to Glutathione Content of Animal Tissues. H. Brown and J. A. Kolmer, Philadelphia.—p. 417.
Antipyretic Action and Toxicity of Combinations of Magnesium with Phenyl Cinchoninic Acid. H. G. Barbour and J. E. Winter, Louisville, Ky.—p. 425.
Studies in Absorption and Excretion of Magnesium. W. F. Taylor and J. E. Winter, Louisville, Ky.—p. 435.
*Comparative Study of New Ether Derivatives of Barbituric Acid. F. P. Underhill and O. R. Johnson, New Haven, Conn.—p. 441.
Effect of Intravenous Injections of Colloidal Lead on Circulatory System. W. J. Dilling, Liverpool, England.—p. 449.

Pharmacology and Toxicology of New Organo-Mercury Compounds.—A series of compounds were prepared by Cohen by the combination of mercury thioglycollic acid with various of the hydrocarbon radicals. The drugs are highly bactericidal for the tubercle bacillus, but are also quite toxic to the animals themselves. They produce a paralysis of the hind legs associated with tonic and clonic convulsions. This paralysis is most probably due to this particular type of organo-mercury combination with the hydrocarbons.

Pigeon Emesis in Estimating Potency of Digitalis.—A method of estimating the potency and the probable therapeutic dosage of digitalis by determination of the minimum emetic dose in pigeons is proposed by Hanzlik. The method has been compared with the official frog method and the cat method, and a number of factors affecting the accuracy and applications of the pigeon method have been considered. The method is simple, easy, convenient, economical and reasonably accurate. If desired, the determination of the minimum emetic dose may be supplemented by the determination of the minimum fatal dose in the same pigeons, and from the ratio of the minimum emetic dose to the minimum fatal dose, an idea of the margin of safety in digitalis preparations may be obtained, but this is not indispensable to biologic assay or to estimation of the probable therapeutic dose. The minimum emetic dose of digitalis causes changes in the pigeon heart which are characteristic of advanced digitalis action, thus further justifying expectations of therapeutic action when the minimum emetic dose per kilogram in pigeons is transferred directly, and given by mouth, to man.

Results with Pigeon Emesis Method.—The circulatory and side actions of tinctures of digitalis, assayed by the pigeon emesis method, were observed by Hanzlik and Stockton in six convalescent and two pathologic human subjects, who received the preparations by mouth. The effects were controlled in three subjects receiving alcohol and atropine. Fully developed actions of digitalis were produced in the majority of the subjects, as indicated by sustained slowing of the pulse, fall in the blood pressure and reduced pulse pressure, the doses agreeing closely with the probable doses estimated from the minimum emetic doses in pigeons. Nausea and emesis occurred in one-half the subjects receiving the digitalis, thus corroborating the high efficiency of the clinical dosage estimated from the minimum emetic dose in pigeons. Conditions affecting the efficiency of the probable therapeutic dosage of digitalis in pathologic conditions of the circulation are discussed; such dosage ascertained with pigeons, and given in several divided doses orally, gave complete therapeutic responses in three out of four patients. Thus, the evidences taken together indicate that the pigeon emesis method of estimating the potency of digitalis appears to predict the probable therapeutic dose for man.

Ethylenethiocarbamide Derivatives for Treatment of Tuberculosis.—Two new complex copper and gold derivatives of ethylenethiocarbamide have been investigated by Dixon and Hoyle for therapeutic activity in the treatment of experimental tuberculosis. Though the gold compound delayed death, the beneficial effect was not sufficiently decided to warrant further investigation.

Study of New Ether Derivatives of Barbituric Acid.—Of the six derivatives investigated by Underhill and Johnson which did not cause paralysis, ethyl benzyloxymethyl barbituric acid stands nearest to barbital in effectiveness. When administered intravenously to the dog, it has a toxic action on the heart. Given by mouth, a toxic action on the heart is still to be noted but the effect is not fatal. In both instances there is a lowering of blood pressure.

Maine M. Assoc. Journal, Portland

20: 47-60 (April) 1929

Bone and Joint Syphilis. J. W. Lamb, Portland.—p. 47.
Hard-of-Hearing Child. F. T. Hill, Waterville.—p. 53.

New England J. Medicine, Boston

200: 853-908 (April 25) 1929

Immunologic Consideration of Pneumonia and Discussion of Rational Basis for Vaccine Therapy. H. Zinsser, Boston.—p. 853.
Warren Stock and Some of Its Scions. D. Cheever, Boston.—p. 857.
J. C. Warren The Man. F. C. Shattuck, Boston.—p. 863.
John Warren, 1874-1928. J. L. Bremer, Boston.—p. 864.
Renal Infection: Fifty Cases. G. G. Smith, Boston.—p. 867.
Comparison of Laboratory Reports on Release Diphtheria Cultures. D. Belding and M. Fogel, Boston.—p. 876.
Infection of Antrum or Maxillary Sinusitis. O. A. Lothrop, Boston.—p. 879.
Interdependence of Doctor and Social Worker in Legal Adoption. I. R. Parker, Boston.—p. 883.
Place of General Practitioner in General Hygiene Movement. B. Crothers, Boston.—p. 887.

200: 909-958 (May 2) 1929

*Deductions from 6,700 Goiter Operations. F. H. Lahey, Boston.—p. 909.
*Cause of First Heart Sound. F. W. Palfrey, Boston.—p. 917.
Progress in Obstetrics. J. Rock, Boston.—p. 919.
Duty of County Medical Society to Small Communities in Matters of Medical Service. R. E. Clow, Wolfeboro, N. H.—p. 298.
Subjects for Discussion at Medical Meetings. F. P. Lord, Hanover, N. H.—p. 929.
Symposium on Alcohol. F. J. Drury, Londonderry, N. H.—p. 932.
Status of Alcohol and Prohibition Liquor from Chemist's Standpoint. C. D. Howard, Concord, N. H.—p. 933.
Experience of Washingtonian Home. H. B. Gray, Boston.—p. 936.

Deductions from 6,700 Goiter Operations.—Some of Lahey's deductions are based on vessel ingrowth as a criterion. The incidence of malignancy in a group of 1,484 cases of adenomatous goiter was 6 per cent. Adenomas of the thyroid frequently produce definite changes in the position of the trachea, as is shown by illustrations in the article. The preoperative employment of iodine has practically eliminated preliminary pole ligation. The patient operative mortality rate in all types of goiter was 0.6 per cent during 1927, and 0.28 per cent in 1928. The dangers of thyroid crises are stressed and measures to avert the occurrence of the conditions suggested. Lahey asserts that there are practically no thyrocardiac patients in whom the decompensation is due to a superimposed thyroidism who cannot be operated on. Subtotal thyroidectomy, in thyroidism associated with pulmonary tuberculosis or with diabetes, markedly assists in controlling the associated condition. The necessity of finding at the time of operation any parathyroid glands accidentally removed, and immediately grafting them into a sternomastoid muscle, is stressed and experimental indication of its efficacy submitted.

Cause of First Heart Sound.—Palfrey suggests that the first heart sound may be due to the sudden assumption of tension as the ventricular walls, as well as the valves, pass from the relaxed diastolic state into their systolic positions, in beginning to exert pressure on the blood within the ventricles.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Heart, London

14: 283-367 (March 24) 1929

*Auricular Fibrillation Treated with Quinidine Sulphate: Duration of Restored Normal Mechanism. K. E. Harris.—p. 283.
*Complete Heart Block of Unusually Long Duration. K. E. Harris.—p. 289.
*Auricular Standstill During Quinidine Sulphate Therapy. L. Wolff and P. D. White.—p. 295.
*Hemoglobinuria and Urticaria from Cold Occurring Singly or in Combination; Mechanism of Urticaria; Raynaud's Disease. K. E. Harris, T. Lewis and J. M. Vaughan.—p. 305.
Effect of Histamine and Local Injury on Blood Vessels of Dog: Vasodilator Substance in Extracts of Frog's Skin. R. T. Grant and T. D. Jones.—p. 339.

Auricular Fibrillation Treated with Quinidine Sulphate.—A series of forty-three cases of chronic auricular fibrillation treated with quinidine is reported by Harris; in these, fibrillation was abolished and normal rhythm restored in twenty-six. In these twenty-six cases, the rhythm remained normal for one month in 65.4 per cent, for six months in 57.7 per cent, and for twelve months in 36.0 per cent. Normal rhythm is still present in one case and has been present for a period of four years since fibrillation was abolished by treatment. In one case the rhythm remained normal for seven years, and then fibrillation was resumed.

Complete Heart Block of Unusually Long Duration.—A case is reported by Harris in which complete heart block has been present for twenty-eight years. It showed itself first by means of a short series of serious syncopal attacks. The case is unusual not only for its duration but especially because the man has enjoyed vigorous health without limitation of his capacity for physical work throughout the whole period named.

Auricular Standstill During Quinidine Sulphate Therapy.—Two cases of probable auricular standstill of a few hours' duration associated with quinidine therapy of auricular fibrillation are recorded by Wolff and White.

Hemoglobinuria and Urticaria from Cold; Mechanism of Urticaria; Raynaud's Disease.—In one case reported by Harris et al. the hemoglobinuria occurred in response to exposure to cold and was due to a hemolysin in the patient's serum, a fact repeatedly shown by in vitro tests. In these tests hemolysis was maximal after exposure at 0 C. and was not seen above 13 C.; hemoglobinuria was produced by exposure at temperatures as high as 18 C. Exposure at 0 C. for fifteen or even five minutes seemed sufficient to give maximal hemolysis in vitro. This patient's skin was not unusually responsive to other forms of stimulation. In another case cold produced urticaria locally in the skin. A temperature of 10 C. appeared to be more effective than 0 C. This patient had no hemoglobinuria, and no hemolysin could be demonstrated in the blood; but his serum contained a dermolysin, which could be transferred readily to the skins of normal subjects by injection, causing them to react similarly to cold. In a third case of hemoglobinuria from cold a hemolysin was found in in vitro tests, but the skin was not unduly susceptible to cold and no evidence of a dermolysin was found in the blood. Hemoglobinuria from cold is shown to occur in cases of groups III and IV of the Moss classification.

Lancet, London

1: 909-962 (May 4) 1929

Surgery of Esophagus and Lungs. J. H. Zaaijer.—p. 909.
*Chronic Lymphoid Leukemia. P. N. Panton and F. C. O. Valentine.—p. 914.
Treatment of Tabes Dorsalis and Results. W. J. S. Reid.—p. 916.
Calculous Anuria. H. P. W. White.—p. 918.
*Value of Joint Auscultation. C. F. Walters.—p. 920.
Gouty Chemosis Treated with Cinchophen: Case. V. St. L. Pinnock.—p. 921.

Chronic Lymphoid Leukemia.—Twenty-five cases of chronic lymphoid leukemia, twenty in men and five in women, are analyzed by Panton and Valentine. They state that this form of leukemia is the only one in which sex is an etiologic factor. The average age incidence was 55 years, and a recent history of impotence was not uncommon. The Hebrew race is particularly susceptible to this disorder. The duration of the disease from the onset of clinical symptoms until death was determined in twenty-one cases. In these the average duration was 2.17 years, but the series included a man and a woman who lived for seven and six years, respectively. The lymph glands were palpably enlarged in all cases with the exception of a woman who was observed over a short period. The spleen was found enlarged on clinical examination in twenty patients, but in only four cases was the lower pole of the spleen found to descend below the level of the umbilicus. In fifteen cases of the series the earliest symptoms were those of lymphatic enlargement, and the commonest site of this enlargement was in the cervical lymph glands. Four patients noticed abdominal swelling as an early symptom. Analysis of the blood picture in this series shows that in nineteen cases the predominant cell was a small lymphocyte and in six cases a large lymphocyte, and all of these six cases presented glandular enlargement but only three splenomegaly, whereas seventeen of the nineteen cases of the small lymphocyte type presented enlargement of the spleen. The average of the highest count was for the six patients with large cells 66,000 and for the nineteen with small cells 208,000. It would appear that in the large-cell lymphoid leukemia there is a greater tendency to lower white cell counts and less splenic enlargement. Anemia was present at some period in all cases, but in no less than fourteen out of the twenty-five patients the red cells were in the neighborhood of 5,000,000 per cubic millimeter or even above this figure in the earlier examinations. The color index was usually that of a secondary anemia, but in some cases with a low red cell count the index rose to 1 or even higher. The treatment of these cases consisted for the most part in arsenic given by mouth and roentgen rays administered over the splenic area. In the majority of cases roentgen treatment consisted in massive doses given over the splenic area and resulted, as a rule, in a diminution of the white cell count. Some diminution in size of the spleen, and occasionally a return almost to the normal size, results, and the patient is rendered correspondingly more comfortable. Also, accompanying the diminution of the white cells, patients experience a certain feeling of well being, and on psychologic grounds alone the treatment is worth pursuing in the absence of any known remedy. In the chronic lymphoid cases, enlargement of the spleen is rarely sufficient to embarrass the patient seriously; the disturbances set up by the treatment may be considerable, and the authors feel that this form of roentgen treatment is, in the majority of cases, better avoided. On the other hand, roentgen treatment of the lymphatic enlargements is often of great value and should always be employed when the glands are of sufficient size to inconvenience or by pressure to distress the patient. The lymphatic swellings nearly subside rapidly under roentgen rays. The actual cause of death in the great majority of these patients is unknown, since death did not occur in the hospital, and no postmortem examination was obtained. Two patients died from sepsis subsequent to a minor lesion.

Value of Joint Auscultation.—About 1,600 joints were auscultated by Walters under passive movement. He says that auscultation of joints may reveal a very early stage of roughness or grating that is not recognizable by other means. As age advances the grating appears to increase steadily until it is manifest to touch and the unaided ear; in the most advanced stages its cause is visible roentgenographically as the joint changes of osteoarthritis. These joint sounds are to be heard, by stethoscope, in a large number of hospital patients, unselected save for sex and age, and admitted for other than joint conditions. The number of affected joints, as a whole, preponderates in the female as 55.7 per cent to 44.3 per cent, the most markedly affected joints, however, existing in the female as 4.3 to 1 male. These figures suggest that the more arduous work of the male is not a factor in producing these sounds. A possible past or present focus existed in 80 per cent of the cases examined. The number of joints with auscultatory changes becomes more numerous as age advances, from 1.5 per cent to 81.5 per cent. The sounds heard, judging from their wide distribution through many joints, are probably the result of changes produced by a blood-borne infection or intoxication. This is confirmed by the fact that the stethoscope will also often reveal, in the same subject, many other joints in which disease is latent and as yet unheralded by discomfort or pain. The removal

of a focus may render a manifest joint again latent, but it will still be audible to the stethoscope and sometimes to touch. In patients with ostearthritis in one joint, many other joints will by stethoscope almost invariably be found to be involved in a lesser or greater degree, of which the patient is often quite unconscious. Grating of the second degree is often found in painless joints but is more likely to be associated with pain or discomfort than is the lesser marked grating or roughness. Grating of the third degree is much more often found with complaint of pain or rheumatism. Of forty-seven patients with grating joints, twenty-five complained of rheumatism and twenty-two did not have rheumatism. Of sixteen patients in whom grating was found, fourteen complained of rheumatism and only two did not complain.

Medical Journal of Australia, Sydney

1: 472-506 (April 13) 1929

*Intradermal Test in Hydatid Disease. K. D. Fairley.—p. 472.
Radiologic Examination of Thorax. K. S. Cross.—p. 483.
Malignant Endocarditis. W. G. Holt and G. Griffiths.—p. 486.
Cerebral Hemorrhage in Child. T. Hamilton.—p. 487.
Excision of Diverticulum of Urinary Bladder. R. C. Brown.—p. 487.
Fatal Hemorrhage from Small Intestine Following Appendicectomy. A. T. Roberts.—p. 488.

Intradermal Test in Hydatid Disease.—The results of intradermal tests for hydatid disease are analyzed by Fairley. In patients not previously operated on for hydatid disease the immediate response was present in 77 per cent of those harboring uncomplicated cysts and in 92.6 per cent of those with ruptured or suppurating cysts. Of eighty-seven patients showing an immediate reaction there was proof of hydatid disease in only fifty-two (59.8 per cent). A positive immediate response to this test is therefore not conclusive evidence of hydatid disease. No evidence of hydatid infestation was found in 96.8 per cent of patients in whom the immediate response was absent. The absence of an immediate response is therefore extremely valuable though not conclusive evidence on which to exclude hydatid disease. This is the chief value of the immediate reaction. When there is no history of a recent urticarial rash, the absence of an immediate response definitely excludes a ruptured or suppurating cyst. The author says that in Australia a positive delayed response to the first intradermal test on any patient is of value as evidence of the presence of hydatid disease, provided the fluid used for the test is known to be suitable. This response was found only in 56 per cent of patients with uncomplicated cysts and in 26 per cent of those with ruptured or suppurating cysts. The absence of a delayed reaction is of no value in excluding hydatid disease. Absence of a delayed reaction in the presence of a positive immediate response associated with high titer complement of fixation or precipitin tests is pathognomonic of rupture or suppuration of a cyst in a patient not previously operated on for hydatid disease. Such observations are also frequent in the second week after operation on a hydatid cyst. The pathologic condition of the cyst has a much greater influence on the intradermal reaction than the location of the parasite. In the postoperative period, immediate reactions were absent in 9.8 per cent of patients. Absence of an immediate reaction months or years after operation in a patient previously showing a positive response is strong evidence of cure when recent rupture of a cyst can be excluded. A preoperative delayed reaction usually disappears within a few hours to a fortnight after operation. Generally it reappears in from ten days to two months. When no absorption of antigen occurs, the reaction is not affected by the surgical intervention. Reactions ten years or more after the previous operation for hydatid disease suggest a careful investigation of the patients for further cysts, which will generally be found.

Quarterly J. Medicine, London

1: 381-556 (April) 1929

*Investigation of Blood Pressure, Pulse Rate and Response to Exercise During Normal Pregnancy: Observations After Confinement. D. C. Hare and M. N. Karn.—p. 381.
Significance of Polynuclear (Cooke) and Schilling Leukocyte Counts. A. Piney.—p. 405.
*Primary Carcinoma of Lung. S. L. Simpson.—p. 413.
*Treatment of Experimental Tuberculosis by Calcium Administration. J. C. Hoyle.—p. 451.
Clinical Aspects of Muscular Exercise. F. W. Law.—p. 461.
Metabolism of Amino-Acids in Health and in Disease. L. Witts.—p. 477.
*Blood and Urinary Chemistry During Pregnancy: Blood Sugar Curves. E. C. P. Williams and L. Wills.—p. 493.
Specific Oxygen Capacity of Blood Coloring Matter in Pathologic Conditions. H. Engelkes.—p. 507.
Pulse Rate and Range in Health and in Disease During Childhood. G. A. Sutherland and J. McMichael.—p. 519.
Latent Tuberculous Lesions in Lungs as Determined by Roentgenologic and Pathologic Investigation. D. Krestin.—p. 531.

Blood Pressure, Pulse Rate and Response to Exercise During Pregnancy.—The report made by Hare and Karn on conditions in pregnancy is based on the examination of 106 women who made 468 attendances and on 145 women seen once or twice only. Of this total, 121 were primiparas and 130 multiparas. The average systolic blood pressure of healthy women during pregnancy is lower than the average of nonpregnant women; also the average deviation during pregnancy is less and the range is consequently slightly smaller. Changes during the course of pregnancy show a tendency to a lower pressure in the middle period than in the earlier weeks, and there is a slight but significant rise in the last three months. Any considerable rise is to be associated with the onset of a toxic condition. The mean pressures show no relation to age except in the age group over 35 years, in which the mean is significantly higher. The mean diastolic pressure during pregnancy is not significantly different from that of nonpregnant women. The pulse pressure is lower than that of nonpregnant women, and falls with the advance of pregnancy. The pulse rate during pregnancy is not significantly altered from the normal. An exercise test is well performed, and the pulse rates after exercise are not significantly different from those of controls; in the last months of pregnancy the mean rates after exercise are below those of the preceding periods. The "cardiac energy" index falls in later pregnancy below the normal figure. There was no evidence to be found in this work of embarrassment of the circulation during the later months of pregnancy.

Primary Carcinoma of Lung.—Simpson analyzes 139 cases. Seventy-six were of the oat cell variety. Metastases occurred in the majority of cases. The regional lymph nodes were involved in 104 cases, the parietal pleura in thirty-one cases; but the pleura was also involved by direct spread in nine cases. Metastases occurred in the lung, apart from direct spread of the primary growth, in only sixteen cases. Of the viscera the liver and suprarenals were the favorite sites, and the pancreas was also frequently involved. The brain was affected in nineteen cases. Of the nineteen cases, eleven were in the cerebrum, four in the cerebellum, and four in both cerebrum and cerebellum. The skull was involved in only five cases. The vertebral column, however, was affected in twenty-nine cases, in seven of which signs of a cord lesion (such as paraplegia) were produced by pressure of the growth on the cord. In only one case was the spinal cord itself the site of a metastasis, and in this case there was also a metastasis in the cerebellum. The most frequently occurring symptoms were cough in ninety-two cases; pain in eighty-nine cases; wasting in seventy-two cases; dyspnea in seventy cases; sputum in seventy cases; pyrexia in fifty-four cases, and hemoptysis in fifty cases. The physical signs vary enormously, depending on the site of origin of the growth, the stage at which examination is made, and the numerous complications. Roentgenographic examination of the thorax was made in fifty-two cases; of these, only twenty-nine were definitely diagnosed roentgenographically as intrathoracic neoplasms. In four cases the radiologist made the diagnosis of aneurysm, and in three cases he was unable to decide between aneurysm and neoplasm. Pleural effusions were detected in life in thirty cases. Thirty per cent of the effusions were sanguineous. Seventy-three cases were correctly diagnosed. In the majority of cases the diagnosis was that of a pulmonary complication, the primary carcinoma being undetected. Forty-seven cases showed some evidence of tuberculous infection of the lung. Of these, however, only six showed active tuberculous lung infection. Seven cases showed healed tuberculous nodules. Thirty showed calcareous glands in or about the hilar region, and in four cases there were mesenteric tuberculous glands. Six cases showed evidence of syphilitic lesions. Four showed syphilitic aortitis, of which two also presented syphilitic fibrosis of the testicle. One case presented syphilis of the lung, and another syphilis of the lung,

liver and kidneys. In both cases the syphilitic and neoplastic changes occurred in the same area of lung.

Calcium Administration in Treatment of Tuberculosis.—Hoyle reports that treatment of experimental tuberculosis in the rabbit by intravenous administration of calcium has no effect in prolonging the course of the disease in a moderately rapid experimental infection; and it is evident that experimental evidence is lacking to suggest that calcium exerts a direct therapeutic action on the course of the disease.

Blood and Urinary Chemistry During Pregnancy.—Williams and Wills assert that the blood sugar curves of normal nonglycosuric pregnant women in all periods of pregnancy and the puerperium fall well within the range of curves obtained from normal nonpregnant women. The blood sugar curves in normal nonglycosuric pregnant women tend to drop as pregnancy progresses, then to rise in the early puerperium and return to normal in a few weeks' time. The renal threshold would appear to be lowered in the majority of normal pregnant women, probably in all, but this could not be shown conclusively.

Archives des Maladies du Cœur, etc., Paris

22: 209-288 (April) 1929

*Physiology of Ansa Subclavia. R. Leriche and R. Fontaine.—p. 215.
*Physiologic Regulation of Arterial Tension. L. Bard.—p. 228.
Chronic Paroxysmal Tachycardia in Young People. R. Lutembacher.—p. 241.

Physiology of Ansa Subclavia.—Leriche and Fontaine, after the exposure of the lower cervical and the upper thoracic sympathetic ganglions together with the ansa subclavia (of Vieussens) and the trunk of the vagus in anesthetized dogs, excited the anterior and the posterior branches of the intact ansa subclavia first and then the four ends of the ansa subclavia after its section. They found in the ansa subclavia sensory fibers, the excitation of which caused various changes in the arterial tension (hypertension or hypotension). This kind of sensory fiber has not yet been described in the ansa subclavia. They are sympathetic nerve fibers, but coming from the corresponding viscera or large vessels they join the thoracic part of the trunk of the vagus and ascend as part of it up to the middle cervical ganglion, through which they pass, without interruption, mostly into the anterior branch of the ansa subclavia, to end in the stellate ganglion. The authors think that the presence of these fibers in the ansa subclavia may have a practical interest in cervical sympathectomy, especially for angina pectoris.

Physiologic Regulation of Arterial Tension.—Bard thinks that the circulatory system distributes not only the nutritious materials but also a certain mechanical force, which maintains a certain average tension level in the tissues and fluids outside the capillary system. He ascribes the most important part in the regulation of the arterial tension to the peripheral factors: The local changes of the average tension level in the tissues and fluids of the organism excite the peripheral autonomic nervous centers in the nervous plexuses in the walls of the vessels, which automatically adapt the local circulation to the new requirements. No effect on the general arterial tension is caused by the slight variations in the local peripheral circulation, but in the case of more intensive changes in it, more vasomotor centers and also the cardiac functions become involved automatically to compensate the decrease or the increase of the local tension level in the tissues and the fluids, with, as the result, corresponding changes in the general arterial tension. In this case, if the causes of excitation of the peripheral vascular centers become permanent, the level of the general average arterial tension changes also by the adaptation to the local tension changes.

Bulletin de la Soc. d'Obst. et de Gynéc., Paris

18: 189-271 (March) 1929

*Recurrent Interstitial Pregnancy After Salpingectomy. Chabrut.—p. 189.
Statistics of Puerperal Infections at the Pitié Hospital. C. Jeannin and M. Sureau.—p. 192.
Pregnancy After Intratubal Injection of Iodized Oil. R. Solal.—p. 196.

Recurrent Interstitial Pregnancy After Salpingectomy.—In 1926 a right-sided salpingectomy was performed for suppurative salpingitis in a woman, aged 24. Four and a half months later the same woman was operated on for ruptured interstitial pregnancy that occurred in the stump of the amputated tube. The left tube was normal. The ruptured uterine wall was carefully sutured, and the woman recovered uneventfully. More than two years later (end of 1928), after a cessation of menstruation for one month, the woman was operated on by Chabrut because of symptoms of acute rupture of ectopic pregnancy. The same picture of ruptured interstitial pregnancy in the stump of the amputated tube was observed at laparotomy as in the intervention two years before. This time subtotal hysterectomy was performed and the patient again recovered without complications.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

55: 485-522 (April 20) 1929

Reconstruction of Clavicle by Bone Graft. J. Madier.—p. 486.
External Prosthesis in Bone Surgery. Charbonnel.—p. 489.
*Traumatic Rupture of Pancreas. Paitre and Courboulès.—p. 494.
*Pistol Bullet Wounds of Liver, Stomach, Pancreas, Duodenojejunal Flexure and Sigmoid. Paitre.—p. 502.
Myeloplaxic Tumor and Enchondroma of Fingers. Michon.—p. 504.
Treatment of Intrapulmonary and Interlobar Abscesses by Incision and Drainage. R. le Fort.—p. 510.
Surgical Intervention in Nonsuppurative Pulmonary Diseases. R. le Fort.—p. 516.
Mediastinotomy in Acute Compression of Vena Cava Superior by Tumor of Mediastinum. R. le Fort.—p. 519.

Traumatic Rupture of Pancreas.—Paitre and Courboulès report a case of traumatic rupture of the body of the pancreas with subsequent development of a pancreatic pseudocyst in a man, aged 35, whose body was squeezed in an accident. At examination of the patient (after the return of consciousness), only some small superficial wounds between the umbilicus and the middle part of the sternum were found. The abdomen was slightly resistant and slightly painful, especially in the epigastrium. The pulse was 110, the temperature, 37.2 C. (99 F.). The patient, who complained of severe dorsolumbar pain and was in a state of shock, was kept under observation. Ice to the abdomen, morphine, and physiologic solution of sodium chloride with epinephrine were prescribed. A week later, after the abdom... had become soft and painless, a tumor appeared in the epigastrium and slowly increased in size; the patient lost weight, but his general condition was good and his temperature was normal. At laparotomy a rupture of the pancreas with a pancreatic pseudocyst was found; the pseudocyst was punctured and about 2 liters of fluid, with all the properties of pancreatic juice, was withdrawn. The patient recovered completely in less than two months after the operation. Only loss of weight and transient diarrhea, without glycosuria, polydipsia or polyphagia, were observed either before or after the operation.

Bullet Wounds of Liver, Stomach, Pancreas, Duodenojejunal Flexure and Sigmoid.—Paitre reports a case of wounds of various abdominal viscera (liver, stomach, pancreas, duodenojejunal flexure and sigmoid) caused by two pistol bullets in a man, who was operated on twenty hours after the accident had occurred. The author thinks the case of interest because the patient recovered without primary infection and the wound of the pancreas healed without complications, notwithstanding the late surgical intervention, long and difficult transportation, intraperitoneal hemorrhage and widely open wounds of the stomach and the intestines, allowing the penetration of the gastro-intestinal contents into the peritoneal cavity.

Gynécologie et Obstétrique, Paris

19: 161-256 (March) 1929

Primary Localization of Syphilis in Umbilical Cord of Fetus. Y. Manouélian.—p. 161.
Prophylaxis of Puerperal Infection. Le Lorier.—p. 166.
*Bilirubinemia in Pregnant Women. E. Quater, S. Raphalkes and I. Kaganovitch.—p. 170.
*Plastic Reconstruction of Vagina with Bladder. N. Markoff.—p. 182.
Valvular Hydrosalpinx. C. Béclère.—p. 191.
Effect on Bladder of Roentgen and Radium Treatment of Cancer of Cervix Uteri. Z. Rychlowski.—p. 212.
Abscesses of Uterus. P. Wilmoth.—p. 217.

Bilirubinemia in Pregnant Women.—Quater et al. determined (by Bakcht's method) the amount of bilirubin in the blood serum of 211 women and thirty fetuses (forty-four pregnant women, thirty women in labor, thirty in the normal puerperium and 107 with various kinds of puerperal sepsis). Bilirubin was found in the blood serum of 72.8 per cent of the nonseptic women; it varied from 1.6 mg. to 6.25

mg. per hundred cubic centimeters (1.97 mg. on the average) in the pregnant women; increased to 2.35 mg. on the average during labor, and dropped again to 1.78 mg. on the average in the normal puerperium. But in the various septic puerperal conditions bilirubin was found in the blood serum of all the 107 patients, and its amount was in direct relation to the gravity of the infection. Thus in general sepsis 5.54 mg. of bilirubin per hundred cubic centimeters of blood serum was found on the average (from 12.5 mg. to 25 mg. per hundred cubic centimeters in some cases of particularly severe infection); in severe localized puerperal sepsis (parametritis, thrombophlebitis), 2.75 mg. of bilirubin on the average, and in the light puerperal infections (endometritis adnexitis, mastitis), only 1.97 mg. of bilirubin per hundred cubic centimeters of blood serum. In the fetuses the amount of bilirubin in the blood serum was on the average more than twice the amount in the maternal blood serum. The results of the Ehrlich diazoreaction in the blood serum of the same women and fetuses proved a nonhepatogenic origin of the bilirubin in the reported cases. The variations in the bilirubin content of the blood serum in these conditions are explained by the increased functions of the reticulo-endothelial system in pregnant women (lowest percentage of blood bilirubin in the puerperium) and in the fetuses. The amount of bilirubin in the blood serum of patients with puerperal sepsis depends on the severity of the hemolytic process caused by the infection. In artificial therapeutic hemolysis (protein autotherapy), used by the authors for the treatment of puerperal sepsis, the amount of the blood bilirubin was found in twenty-four hours to be twice as high as before the treatment and frequently remained high for the following three or four days.

Plastic Reconstruction of Vagina.—Markoff reports a reconstruction of the destroyed vagina by means of a plastic operation (substitution of the bladder) in two patients, aged 23 and 28, respectively. The pathologic conditions in the two patients were similar: rectovaginal fistula, complete destruction of the urethra and of the posterior wall of the bladder and cicatricial degeneration of the vagina, after a difficult delivery without adequate medical help. After the repair of the rectovaginal fistula, the lateral walls and the rest of the posterior wall of the bladder were separated from the adhesions, pulled down and sutured to the posterolateral vaginal mucosa in one case and to the skin of the posterior part of the introitus vaginae in the other case, in which the posterior wall of the vagina was completely destroyed by the fistula. At the second operation the ureters were transplanted into the rectum and the patients were sterilized. In one case the sterilization was made by ligation and partial resection of the tubes, and the cervix uteri was inserted into the upper part of the bladder. This patient eventually menstruated. In both patients the complete incontinence of urine and feces was cured and coitus was made possible.

Paris Médical

1: 313-348 (April 6) 1929

Pathology of Digestive Tract in 1929. P. Carnot and H. Gaehlinger.—p. 313.
*Treatment of Cancer of Rectum. Hartmann.—p. 328.
Anal Chancroid. Friedel.—p. 332.
Bilocular Stomach by Dilatation of Posterior Wall of Fundus. G. Guénaux and P. Vasselle.—p. 335.
*Abnormal Forms of Intestinal Amebiasis. J. Rachet.—p. 341.

Treatment of Cancer of Rectum.—Hartmann reports on the treatment of 505 patients with cancer of the rectum, of whom 413 were operated on in his service. In 203 cases, left iliac colostomy was performed as a palliative measure. The operation was done without muscular section, by simple separation of the muscle fibers to prevent the occurrence of late evagination of the intestine. The postoperative mortality was low (3.5 per cent); the amelioration usually was considerable, and the patients lived from six months to six years afterward. Radium therapy combined with the palliative operation usually did not give good results. As to the radical operations, intrasphincteric resection of the rectum was done in only one case of cancer with prolapse of the rectum and was followed by a complete cure, with normal functioning of the sphincter. Seventeen and one-half years later the patient was operated on again for cancer of the cecum and died eighteen months later from recurrence of cancer in the prevertebral lymph nodes. In 130 cases perineal amputation of the rectum was done, with cure in 50 per cent of the patients, and in seventy-three cases abdominoperineal amputation of the rectum, with cure in 64 per cent of the patients. However, though the percentage of cures was higher in the abdominoperineal resections of the rectum than in the perineal resections, the immediate postoperative mortality in the abdominoperineal resections was considerably higher (16 per cent and 35 per cent, respectively). Therefore, Hartmann has lately returned to the exclusively abdominal resection of the rectum in cases of cancer in its upper part.

Abnormal Forms of Intestinal Amebiasis.—Rachet reports several cases of atypical forms of intestinal amebiasis having a practical interest, because since the World War and the close contact with the colonial armies under precarious hygienic conditions, intestinal amebiasis has been observed in many persons who never had been in the colonies. In one man, aged 32, severe rectal hemorrhage occurred suddenly during convalescence from epidemic encephalitis. Ulcerations of the rectal mucosa were noted on rectoscopic examination and numerous amebas were found on examination of the stools. The condition was rapidly cured by the use of emetine. Several years before while in the army the patient had had an attack of diarrhea with bloody, mucous stools, which had been cured in a few days by bismuth and opium. In another man, aged 40, who for three years had been treated by different methods and without avail for rectitis and a stenosis of the rectum, amebas were found in the stools and both rectitis and the stenosis disappeared after two months of a mixed emetine and arsenical treatment. In two further cases reported, the intestinal amebiasis simulated appendicitis. A young woman was operated on for acute appendicitis. The appendix was found only slightly congested. The next day the patient developed a typical dysentery, which was cured by emetine, chinosol and arsenical treatment. Another woman, aged 36, whose husband had had diarrhea since the war, was referred for operation for chronic appendicitis, but the increased number of eosinophils in the blood and the amebas in the stools suggested arsenical treatment, which proved to be successful. In the last case reported, amebas were found only at necropsy in the mucosa of the cecum and the sigmoid in a woman, aged 40, who died from ulcerogangrenous colitis. Therefore, the author thinks that the eosinophilia and the amebas in the stools should be looked for and that emetine treatment should be tried in various atypical intestinal diseases, even if the patient has never been in tropical countries.

Presse Médicale, Paris

37: 481-496 (April 13) 1929

Pulmonary Roentgenography After Injection of Iodized Oil. E. Sergent and P. Cottenot.—p. 481.
*Mechanical Pathogenesis of Arthritis Deformans. P. Moulonguet.—p. 482.
Fibromas of Poupart's Ligament. R. Bonneau.—p. 485.
Lipoid Nephrosis. P. Pagniez.—p. 486.

Mechanical Pathogenesis of Arthritis Deformans.—Moulonguet reports a case of arthritis deformans of the left knee in a man, aged 48. The aspect of the large deformed knee suggested the diagnosis of tabetic arthropathy, but the examination of the nervous system and Wassermann reaction were negative. The man had incurred a severe trauma in an accident thirty years previously and was at that time treated for a fracture of the knee. Since then the knee had been deformed and slightly painful, but it did not interfere with his work until shortly before examination. On physical examination an enlarged knee with an anterior dislocation of the lower end of the femur and abnormal lateral and rotary movements was found; intra-articular foreign bodies were present but no fluid was felt. On roentgenographic examination, a typical picture of arthritis deformans was observed. A large intra-articular foreign body was extracted at arthrotomy and a few specimens of synovial vegetations were secured, at the pathologico-anatomic examination of which small bone fragments were found embedded in the synovial membrane, with a hyperplastic reaction of the synovial membrane around them. The case is considered by the author as a typical demonstration of the mechanical pathogenesis of arthritis deformans: The causative factor in this case was neither an infection nor a

diathesis, but a mechanical factor. An abnormal attitude and the abnormal movements of the articulation during walking caused continuous small intra-articular traumas with the occasional evulsion of small bone fragments, which were pulverized in the articulation, embedded in the synovial membrane and eventually caused a hyperplastic reaction with the development of fibrous and cartilaginous tissues, and later, of osteophytes and of intra-articular foreign bodies. This type of mechanism is involved not only in the evolution of arthritis deformans in cases of articular deformities, congenital or acquired (rickets, traumatism, unsuccessful reduction of fractures or dislocations), but also in nervous (Charcot's) arthropathies and in osteoporosis (senile, endocrinous or traumatic). Thus, for instance, in tabetic arthropathies the continuous intra-articular traumatism is caused by the loss of the deep sensibility and by the incoordination of the movements, whereas in osteoporosis it is caused by the excessive fragility of the bones. Therefore, the author insists on the importance of a prolonged complete rest and the immobilization of the articulation in any articular traumatism and also on prophylactic orthopedic or surgical correction of the articular deformities, even in the cases in which they do not yet cause disturbances. Moreover, he thinks that irradiated ergosterol and parathyroid extracts, with phosphorus, sulphur and calcium preparations, vitamins, roentgen rays and ultraviolet rays should be used more in the treatment of arthritis deformans.

37: 513-528 (April 20) 1929

*Splenectomy in Hemolytic Jaundice. F. Widal, L. de Gennes and Laudat.—p. 513.

Use of Bone Graft as Wedge Between Astragalus and Tibia in Clubfoot. L. Ombrédanne.—p. 516.

*Polyneuritis with Korsakoff's Psychosis in Pregnant Women. E. Ledoux.—p. 516.

*Use of Vaccines in Laparotomy. A. Bécart and H. Gaehlinger.—p. 517.

Splenectomy in Hemolytic Jaundice.—Widal et al. report on a case of splenectomy in hemolytic jaundice in a man, aged 23. The jaundice disappeared completely five days after the operation; the blood count became normal two months after the operation, and the cholemia decreased considerably. A few months later, however, jaundice, anemia and cholemia began to recur in a slight degree whenever the patient was tired. The significant fact in this case was a simultaneous and lasting, though slow increase in the cholesterinemia (from 0.60 before the splenectomy to 1.27 after it) and a decrease in the fragility of the erythrocytes (the initial hemolysis was 78 before the operation and almost normal—52—a year after the operation). The authors think that this effect of splenectomy on the fragility of the erythrocytes and on the cholesterinemia shows the important rôle of lipoids as a factor involved in the fixation of the hemoglobin and thus in the process of hemolysis.

Polyneuritis with Korsakoff's Psychosis in Pregnant Women.—Ledoux reports a rare case of polyneuritis with Korsakoff's psychosis in a pregnant woman, aged 20. In the beginning of the pregnancy the patient had intractable vomiting, with tachycardia and loss of weight, so that the question of interruption of the pregnancy arose. The vomiting, however, stopped in the third month of the pregnancy, but the patient became apathetic and childish, developed an anterograde amnesia and became disoriented with regard to both place and time. At the same time hyperalgesia, abolition of the tendon reflexes and atrophy were observed in the lower extremities. The Wassermann reaction and the examination of the cerebrospinal fluid were negative. Alcoholism was not reported. The pregnancy was not interrupted, and the patient recovered rapidly after the delivery of the fetus at term.

Use of Vaccines in Laparotomy.—Bécart and Gaehlinger placed pieces of omentum and of adhesions secured at various laparotomies in tubes containing bouillon medium. After from twenty-four to forty-eight hours of incubation, abundant cultures, mostly of colon bacilli, enterococci or staphylococci were observed in the bouillon containing pieces of omentum secured at operations on the digestive tract; whereas, the bouillon containing pieces of omentum secured at laparotomies performed for other disease (fibroma or ovarian cyst, for example) remained sterile. Control pieces of the omentum did not produce growth in the filtrate of the mixed vaccines (colon bacillus, enterococcus and staphylococcus). By some other authors (Molodaya, Carnot), often the mesentery of the appendix, the walls of the gallbladder and sometimes the serous membrane of the stomach were also found infected. Therefore to prevent postoperative complications the authors began to use during laparotomies the filtrate of the mixed vaccines on the peritoneum and on all the sectioned tissues. In 195 patients operated on by this method, only three benign pulmonary complications and two deaths were observed, whereas in twenty-four patients in whom the vaccines were not used, eight complications were observed. Moreover, in the first group of patients the postoperative adhesions were fewer or altogether absent.

Revue de Médecine, Paris

45: 1343-1468, 1928

*Cerebrospinal Fluid Hypertension in Heart Diseases. Arnault, Tzanck and P. Renault.—p. 1343.

Cerebrospinal Fluid Hypertension in Heart Diseases.—Arnault et al. studied the cerebrospinal fluid pressure in various cases of heart disease with circulatory disturbances and found that hypertension of the cerebrospinal fluid may be observed not only in diseases of the nervous system but also often in disturbances of the circulatory system. The reading of the cerebrospinal fluid pressure was taken with the patients in the prone position at the moment of the penetration of the needle into the spinal canal and then again after the withdrawal of each cubic centimeter of the cerebrospinal fluid, and a pressure curve was drawn for each patient examined. In many cardiac patients the pressure was considerably increased and was only slightly decreased by the withdrawal of as much as 20 or 30 cc. of the cerebrospinal fluid. Thus, for example, in a case of congenital cyanosis and also in a case of a pulmonary form of cardiac insufficiency, the cerebrospinal fluid pressure was as high as 43 cc. and 30 cc. of water, respectively, and dropped only to the pressure equal to 36 and 22 cc. of water, respectively, after the withdrawal of from 20 to 30 cc. of the cerebrospinal fluid. In a case of stasis cirrhosis (cardiac liver), the cerebrospinal fluid pressure was as high as 53 cc. of water but dropped to 15 cc. of water after the withdrawal of 30 cc. of the cerebrospinal fluid, and the pressure curve registered oscillations corresponding to the hepatic venous pulse. Therefore, the authors think that the cerebrospinal fluid pressure may be important in the study of the functional capacity of the right auricle, and that it is regulated by mechanical hydraulic factors (blood volume), which is proved by the effect of venesection on the cerebrospinal fluid pressure. Thus, after the withdrawal of 200 cc. of blood by means of venesection in men, the cerebrospinal fluid pressure was seen to fall to a pressure of 6 cc. of water, and in experiments on dogs the low cerebrospinal fluid pressure (4 cc. of water) produced by venesection (100 cc. of blood) became normal after a blood transfusion (100 cc.).

Schweizerische medizinische Wochenschrift, Basel

59: 421-444 (April 20) 1929

Diagnosis and Treatment of Fractures and Dislocations of Elbow. O. Winterstein.—p. 423.

Standardization of Technic of Roentgenoscopy. A. Eugster.—p. 426.

*Surgical Infections Caused by Anaerobic Gas Edema Bacilli. W. Löhr.—p. 433.

Extensive Trauma of Abdominal Wall. W. Isler.—p. 437.

Experiences with Morphine Derivatives in Pulmonary Tuberculosis. W. Markowicz.—p. 438.

Treatment of Acne Rosacea. H. Stauffer.—p. 439.

Surgical Infections Caused by Anaerobic Gas Edema Bacilli.—It is pointed out by Löhr that interest in anaerobic bacilli was stimulated especially during and after the World War. The author discusses particularly the gas edema infections that generally develop after flesh wounds on the lower extremities. He likewise considers anaerobic sepsis. This type of sepsis cannot be distinguished from other septic infections by the clinical symptoms but only by bacteriologic examination of the blood. A third variety of anaerobic gas edema is the form that appears following injections. Anaerobic bacteria are often found on the instruments that are employed for injections. This is due to the fact that many anaerobic bacilli are not destroyed by the ordinary methods of sterilization. In discussing the therapy of infections which are caused by anaerobic gas edema bacilli, the author points out that French scientists succeeded in preparing serums against all known anaerobes. He states that such infections should receive careful surgical treatment as well as serotherapy.

Policlinico, Rome

36: 57-124 (Feb. 1) 1929. Medical Section

*Study on Icterus in Relation to Biliary Stasis. L. Paterni.—p. 57.

Experimental Study on Icterus in Relation to Biliary Stasis.—Paterni conducted experiments on three groups of dogs (twenty in all). In group 1, he performed only ligation and resection of the common bile duct; in group 2, splenectomy (primary, simultaneous or later operation) was combined with ligation and resection, and in group 3 he added the ligation and resection of certain hepatic ducts. In all the animals he noted the behavior of the icterus not only clinically but also by determination of the bile pigments in the blood (van den Bergh and Sabatini tests). He controlled also the various pigments in the urine and feces. The animals were killed at various stages and the bodies carefully studied. The liver and the spleen were examined not only histologically but also as to the behavior of the pigment and as to the iron reaction (Turnbull). Some animals were given a diet rich in carbohydrates, in order to observe histologically the behavior of glycogen in the liver (the iodine test). In group 1, the van den Bergh test showed that the first to appear in the blood was the indirect reaction, the time ranging between twelve and twenty-four hours after the operation. The direct reaction appeared in from four to six hours after the indirect, when the latter was still present but was rather weak. It is possible, therefore, to show the coexistence of the two reactions—though both are weak, they are nevertheless frankly present. This fact is important as it speaks decisively against the conception that the two types of reaction depend on the concentration of bilirubin in the blood serum. In group 2, in which splenectomy was added, in no period did it affect appreciably the appearance, the course or the intensity of the bilirubinemia. The macroscopic and microscopic conditions in the liver and bile ducts were no different from those observed in dogs with mere ligation of the common bile duct. In group 3 (ligation of certain hepatic ducts being added), the first fact observable was that ligation of the right and middle hepatic ducts causes no demonstrable passage of bile into the blood (van den Bergh test). Bilirubin appears, however, in the blood when, in addition to the ligation of the right and the middle hepatic ducts, the ligation of a secondary branch of the left hepatic duct is performed. According to McMaster and Rous, ligation of three fourths of the hepatic ducts is necessary to produce icterus. In the animals thus operated on, and killed after periods ranging from a few days to five months, the ligated ducts, instead of being enlarged and turgid above the ligature, were atrophic.

Riforma Medica, Naples

45: 143-175 (Feb. 2) 1929

Angina Pectoris. Queirolo.—p. 143.
*Effects of Ultraviolet Rays on Certain Medicinal Substances. A. Zuppa. —p. 152.
Rare Localization of a Carbuncle. A. Battista.—p. 155.

Effects of Ultraviolet Rays on Certain Medicinal Substances.—Zuppa studied the effects of ultraviolet rays on pilocarpine, atropine and epinephrine. The irradiation was done with an ordinary Bach lamp, at a distance of 40 cm., for periods ranging from five to twenty minutes. The substances were exposed to the action of the radiations, in ordinary capsules, and were shaken continually in order to obtain a uniform irradiation. After five minutes of irradiation, the substances did not present appreciable changes in potency or color. After ten minutes of irradiation, they showed a potency superior to that of the controls, and in some a modification of color. If the irradiation was prolonged for a greater period (from fifteen to twenty minutes or more), the changes in color became more evident. Pilocarpine assumed a more intense yellowish green and epinephrine a deeper red cherry, but, at the same time, their biologic potency diminished gradually until finally it was completely destroyed.

Boletín de la Soc. Cubana de Pediatría, Havana

1: 43-104 (Feb.) 1929. Partial Index

*Lead Poisoning in Child. B. Vilá.—p. 45.
*Ulcerocaseous Tuberculosis in Infant. A. Castellanos.—p. 59.
*Subphrenic Abscess in Girl. A. A. Aballí.—p. 74.

Lead Poisoning in Child, Aged Five Years.—For three weeks Vilá's patient, aged 5, had in his legs and arms, intense colic, cramps, formication, headache and sore throat. He was very emaciated and his gait was unsteady. The buccal mucosa was normal. Discoloration of the gums was absent. The slow, afebrile and progressive evolution, accompanied by motor and sensory disturbances and pains at the nerve roots, suggested a diagnosis of polyneuritis, but the child was not recovering from an infectious disease. The author was about to make a diagnosis of polyneuritis of unknown origin when he learned that the patient's father had an industrial lead poisoning. The child used to stay very close to the father in his shop, where he repaired automobiles and often worked with lead. On the father's gums there was the typical lead line. Examination of the child's urine disclosed lead. A diet with low calcium content was prescribed, an excess of milk, eggs, vegetables and fruits being avoided, and, in addition, potassium iodide was given. The results, however, were not gratifying, probably on account of the peculiar environment of the child, who, disregarding instructions, remained under the same conditions in the same house.

Ulcerocaseous Tuberculosis in Infant.—Up to a few years ago, Castellanos points out, it was erroneously believed that cavities in the lungs of infants were a rare occurrence. Necropsies on infants that have died from this disease have shown, however, that cavities existed in a considerable number of them. Ulcerative lesions of the parenchyma in children are not as frequent as in adults; but their occurrence cannot longer be regarded as exceptional. The author's patient, aged 10 months, was the daughter of a tuberculous mother and of a syphilitic father. After a febrile disease lasting three months, the child developed a caseous pneumonia involving both lobes of the left lung. A large cavity in the inferior lobe of the lung communicated with the bronchi. Necropsy showed caseous infiltration of the whole left lung, with two cavities, one of which communicated with the pleura, causing a small pneumothorax. In the right lung there were more recent lesions.

Subphrenic Abscess in Girl.—Aballí has observed four cases of subphrenic abscess in children. One of these abscesses was secondary to an amebic abscess of the liver; the second was consequent to a suppurative appendicitis. The third abscess was in the left perisplenic zone. The case reported in detail occurred in a girl, aged 8 years. Her abdomen was swollen and at palpation a fluctuating tumor was felt. Roentgenography showed a shadow which gave the impression of being caused by fluid. Roentgenoscopy confirmed the presence of fluid. A diagnosis of subphrenic abscess in the right anterosuperior zone was made. The abscess was successfully evacuated by means of a transpleural operation. The rôle of appendicitis as the etiologic factor in this case could not be determined.

Prensa Médica Argentina, Buenos Aires

15: 1193-1244 (March 10) 1929

*Acute Pulmonary Edema During Delivery. R. Bustos Morón.—p. 1193.
Biliary Fistula: Exploration with Iodized Oil. J. A. Caeiro.—p. 1199.
Pathologic Anatomy of Nephritis. C. Pinedo.—p. 1203. C'cn.
Lead in Treatment of Cancer. A. H. Roffo and O. Calcagno.—p. 1225.

Acute Pulmonary Edema During Delivery.—Bustos Morón believes that in the development of the syndrome of acute pulmonary edema, pregnancy plays an important rôle. The reports of acute pulmonary edema in patients who have valvular heart disease and who are not pregnant, are few in number compared with the cases in which this syndrome is described during pregnancy or delivery. The author reports the case of a patient, aged 31, who two years before had had a right-sided hemiplegia, which later disappeared. She presented valvular heart disease consecutive to an attack of rheumatism. The patient was at the end of her first pregnancy and her general condition had not changed during the pregnancy. On admission to the hospital, urinalysis disclosed abundant albumin. About five hours after the onset of labor, because of dyspnea and tachycardia, an injection of 5 cc. of camphor in oil, was given. The patient had dyspnea and cyanosis, and râles in both lungs. Her serious condition compelled the author to use forceps. After the delivery of the baby, the patient suddenly became seriously ill with orthopnea and intense cyanosis. Withdrawal of 1,000 Gm. of blood and cupping at the base of the lungs gave relief. Both mother and child did well.

15: 1293-1340 (March 30) 1929

Malignant Lymphogranulomatosis. T. Castellano and J. Orgáz.—p. 1293.
Etiologic and Historical Study of Rheumatism. P. Barlaro.—p. 1303.
Do Negative Results of Wassermann Reaction with Blood Serum and with Cerebrospinal Fluid Justify the Belief that Syphilis Has Been Cured by Abortive Treatment? J. L. Carrera.—p. 1317.
Lead in Treatment of Cancer. A. H. Roffo and O. Calcagno.—p. 1317.
*Results of Roentgen Therapy of Angina Pectoris. C. Lian and R. Barrieu.—p. 1333.

Results of Roentgen Therapy of Angina Pectoris.—Lian and Barrieu have resorted to roentgen therapy to give relief from the pain of angina pectoris. In some cases, the patients were relieved after the first treatment, but usually improvement was not noted until after the fourth or fifth treatment. Some patients were able to walk rapidly without exhibiting the least disturbance. During the first treatments, some exacerbation of the anginal pains may be feared, but in the authors' cases they occurred rarely and were slight. If these exacerbations appear, roentgen therapy must be discontinued. The heart muscle is not injured by the treatment.

Semana Médica, Buenos Aires

36: 605-664 (March 14) 1929

*Gangrene of Mouth (Noma) in Children. J. M. Jorge and L. A. García.—p. 605.
Medullary Ependymal Glioma. J. C. Montanaro, J. L. Hanon and E. Dowling.—p. 621.
Myocardia: Syndrome of Cardiac Insufficiency. H. Mascheroni and A. R. Rossi.—p. 627.
Variety of Sago Spleen. D. Vivoli.—p. 631.
Use of Dmelcos Vaccine in Treatment of Paresis. A. M. Sierra.—p. 633.
Bacteriology of Ozena. E. Riccitelli.—p. 637.
Poisoning Caused by Tincture for Dyeing Shoes. L. E. Alcayaga and A. Bercovich.—p. 642.
Tuberculosis of Lung: Treatment by Walbum's Method. G. Sayago and A. Marsal.—p. 648.
Vaccination or Immunization Against Infectious Diseases: Suppression of Anaphylactic Shock and of Serum Diseases. J. R. Blanco Vitorero.—p. 651.
Urban Malaria in Northern Regions of Argentina. N. C. Davis and E. R. Rickard.—p. 652.

Gangrene of Mouth (Noma) in Children.—Jorge and García report that after an epidemic of measles, twenty out of 895 children developed noma. Of ten of these children, aged from 2 to 3 years, seven died and of ten aged from 3 to 4, seven died.

36: 665-724 (March 21) 1929

*Spontaneous Emphysema of Cellular Tissue and of Mediastinum in Evolution of Tuberculosis of Lungs. G. Sayago and T. de Villafañe Lastra.—p. 665.
Diphtheria in Children Immunized with Ramon's Anatoxin. L. A. García.—p. 669.
*Hydatid Cysts of Lung. R. Finochietto.—p. 676.
Traumatic Psychosis. H. M. Piñero.—p. 688.
Therapy in Tuberculosis by Means of Walbum's Method. J. A. Frederiksen.—p. 695.
Roentgenography of Gallbladder in Diagnosis of Biliary Diseases Demanding Surgery. J. Garcia Espin.—p. 704.
Halitosis: Its Causes. G. A. Ries Centeno.—p. 717.
Smallpox or Chickenpox? A. Guaita.—p. 720.

Spontaneous Emphysema of Cellular Tissue and of Mediastinum in Evolution of Tuberculosis of Lungs.—Sayago and de Villafañe Lastra observed this complication in two patients, aged 22 and 33, respectively. The emphysema developed spontaneously in a patient with bilateral fibrocaseous tuberculosis. The patient died some time later. In the other patient the emphysema developed following a pleural puncture, with negative results, caused by the presence of pleural adhesions. In this case a therapeutic pneumothorax was planned, which was not carried out on account of the negative results.

Hydatid Cysts of Lung (Mediastinal Aspect).—Finochietto observed four patients, aged from 13 to 50. In the first case a wide costal resection was performed and the cyst was aspirated by means of a trocar. The postoperative evolution was complicated by generalized emphysema and hydropneumothorax, and the patient died two months later. Of the others two recovered following operation. In one a fatal gangrenous infection of the wound developed. The author believes that in these cases it is better to operate in two steps, or to wait for exteriorization of the cysts toward the ribs before evacuating them.

Klinische Wochenschrift, Berlin

8: 625-672 (April 2) 1929

Calculus in Ureter as Disease Entity. Pflaumer.—p. 627.
*Theoretical and Experimental Basis for Treatment of Exophthalmic Goiter. W. König.—p. 634.
Prophylaxis of Tetanus from Clinical and from Legal Point of View. M. Stolze.—p. 636.
*Functional Test of Liver in Surgical Diseases. H. Achelis.—p. 641.
*Improvement in Results of Operation in Cancer of Mamma, by Postoperative Irradiation. A. Hintze.—p. 644.
Lactic Acid Content of Blood: Carbohydrate Metabolism and Decomposition of Dextrose Molecule. E. Schneider and E. Widmann.—p. 646.
Roentgenoscopy of Joints of Participants in Olympic Games at Amsterdam. F. Heiss.—p. 648.
Effects of Roentgen Irradiation on Reticulo-Endothelial System: Relation to Roentgen Intoxication. A. Schönig.—p. 651.
Mode of Action of Hormone of Thyroid Gland. R. Weil.—p. 652.
Recurrence of Pain After Gallstone Operation. L. von Áldor.—p. 653.

Theoretical and Experimental Basis for Treatment of Exophthalmic Goiter.—König points out that the manifold causes and attendant phenomena of exophthalmic goiter show the close relation of the function of the thyroid to the general condition of the body. Operative resection of the gland is not sufficient. The disturbance in the activity of the thyroid should receive proper treatment, not only because of the possibility that in less severe cases the function of the gland may be brought back to normal but also as a preparation for surgical treatment. The author made experiments on rabbits and he also carefully observed patients with exophthalmic goiter. He came to the conclusion that the treatment of such patients should aim: (1) to reestablish the normal buffer activity of the tissues; (2) to hasten the resynthesis of lactic acid; (3) to decrease the anoxybiotic metabolism, which is probably the cause of most disturbances in patients with hyperthyroidism. To realize these aims he advises giving food rich in alkalis and, in addition to this, alkaline preparations. Sodium phosphate has given good results in improving the resynthesis of the lactic acid. The anoxybiotic metabolism may be counteracted by insulin. However, insulin is ordinarily not effective in patients with hyperthyroidism. It is therefore necessary that the organism should first be alkalized with alkaline preparations.

Functional Test of Liver in Surgical Diseases.—Achelis made experiments to determine the value of the levulose test. His experiments proved that the detection of levulose in the urine is sufficient for the functional test of the liver. In experimenting with different dosages, he found that when 60 Gm. was given, the percentage of positive reactions in healthy persons was negligible, while the latent disturbances of the liver, in case of tumor and in diseases of the biliary passages, were correctly indicated. The author points out that the levulose test gives positive correct reactions even before other signs of liver injury, such as acidosis of the blood, are present. Other advantages of the levulose test are its simple application and its harmlessness.

Improvement in Results of Operation in Cancer of Mamma, by Postoperative Irradiation.—Irradiation following operation for cancer of the mamma is considered by many authorities as useless or even harmful. Hintze states, however, that the unfavorable results were probably due to incorrect dosage or other mistakes in the method of application. He gives a detailed description of the manner in which irradiation was used in a surgical clinic in Berlin. In comparing cases that were treated according to this method with those in which irradiation had not been given, he noted that surgical treatment in combination with radiation gave twice as good results as operation alone. He therefore repeats his former statement that following operation for cancer of the mamma, radiation is advisable.

Medizinische Klinik, Berlin

25: 497-540 (March 28) 1929

Changes in Surgery of Stomach. H. Schloffer.—p. 502.
*How to Improve Prospects of Recovery in Patients with Cancer. Guleke.—p. 504.
Technic of Trepanation of Skull. F. P. Leusden.—p. 507.
Unusual Occurrences in Abdominal Operations. H. von Haberer.—p. 508.
Diseases of Bones. H. Coenen.—p. 510. C'td.
*Cardiac Disturbances in Arteriovenous Aneurysm: Surgical Treatment. E. Melchior.—p. 514.
Operations on Hermaphrodites. L. Moszkowicz.—p. 517.
Sympathetic Nervous System and Sensibility. O. Foerster and H. Altenburger.—p. 519.

How to Improve Prospects of Recovery in Patients with Cancer.—Guleke asserts that although there are numerous methods in modern medicine for combating cancer, statistics prove that nearly two thirds of all patients with cancer cannot be cured. This is due to the fact that in most cases effective treatment is begun too late. In investigating several hundred of these incurable cases, the author found that in most instances the patients had neglected to consult a physician. However, in a large number of cases he found that on account of incorrect diagnosis the patients had received the wrong treatment, and in other instances the physician had neglected to suggest surgical treatment. The author thinks that a large number of carcinomas will be detected earlier, if the public is induced to consult a physician early. He therefore advocates lectures to instruct the laity. To the practitioner he gives the advice not to take the complaints of his patients too lightly, and not to neglect careful examination. He points out, especially, that the older, clinical methods of diagnosis should not be neglected completely. They often will be a better aid for a correct and early diagnosis than roentgenoscopy and other modern methods.

Cardiac Disturbances in Arteriovenous Aneurysm: Surgical Treatment.—Melchior reports the case of a man, aged 30, who in 1918 had sustained a gunshot wound of the pelvis. Since 1920 he had developed cardiac disturbances. An examination in 1924 revealed an aneurysm in the left thigh. The patient was often troubled with boils on the left leg. Examination in 1928 revealed a swelling of the leg and varicose veins. The skin was thickened and bluish red. Below the groin an increased pulsation could be noticed, which indicated an arteriovenous aneurysm of the femoral artery and vein. Cardiac disturbances were observed which had somewhat the character of a mitral stenosis. At the operation, which revealed a communication between the femoral artery and vein, the aneurysm was removed. The patient recovered in a short time and the cardiac disturbances disappeared. The author concludes that cardiac disturbances which occur simultaneously with arteriovenous aneurysms should not be considered contraindications to operative treatment. On the contrary, they should be taken as additional proof of the necessity for surgical treatment.

Münchener medizinische Wochenschrift, Munich

76: 615-654 (April 12) 1929

Scarlet Fever. H. Schottmüller.—p. 615. C'td.
*Cyst of Suprarenal in Diabetic Patient. P. Riess and E. Schott.—p. 621.
Meinicke's Clarification Reaction. J. Hohn.—p. 624.
Idem. E. Meinicke.—p. 628.
Photometric Study of Immunity. W. Bachmann.—p. 628.
Hallucinosis in Paresis. L. Gerweck.—p. 631.
*Pernicious Anemia After Resection of Stomach. H. Dennig.—p. 633.
Black Dermographia. M. Breitmann.—p. 634.
Extraction of Foreign Bodies from Nose. W. Obadalek.—p. 634.
Use of Unpurified Table Salt in Goiter. H. Sepp.—p. 635.

Cyst of Suprarenal in Diabetic Patient.—Riess and Schott report a case of cyst of the left suprarenal in a diabetic patient, aged 47. For several years the patient suffered from continual (sometimes exacerbated) pains in the epigastrium, vomiting and a feeling of pressure in the left flank and below the xiphoid cartilage, without disturbances of pigmentation. The abdomen was soft and easily palpable, but no tumor could be felt on palpation; roentgenography, however, showed a shadow in the left flank, which aroused a suspicion of suprarenal cyst. At laparotomy a large cystic cavernous lymphangioma of the left suprarenal was found and emptied by puncture. Because of its large size and of the extensive thick adhesions to the underlying tissues, only the internal membrane of the cyst and as much as possible of its capsule were excised and the rest of the tumor was packed with gauze and drained by means of a rubber drain. The pains, the vomiting and the feeling of pressure disappeared after the operation; the general condition of the patient improved also, but no effect was observed on the evolution of the diabetes mellitus. Therefore, the authors think that the disturbances in the suprarenal were not in any way related to the disturbances in the pancreas in this case.

Pernicious Anemia After Resection of Stomach.—Dennig reports a case of severe pernicious anemia with funicular myelitis which occurred in a patient, aged 41, several years after a resection of the stomach for peptic ulcer. The patient died one year later from intercurrent bronchopneumonia and gangrene of the lung. The author thinks that this case may contribute to the study of the pathogenesis of pernicious anemia proving that the absence of the gastric digestion can be in some cases the cause and not a symptom of pernicious anemia.

Wiener klinische Wochenschrift, Vienna

42: 417-456 (April 4) 1929

Insufficiency of Aortic Valve. R. Maresch.—p. 417.
Klossiella Muris: A Parasite Often Found in White Mice. C. Sternberg.—p. 419.
*Obstruction of Portal Vein. H. Chiari.—p. 422.
Basophilic Granular Cells in Region of Capillary System of Liver. C. Coronini.—p. 423.
*Primary, Isolated Lymphogranuloma of Intestine. A. Goedel.—p. 426.
*Unusual Form of Dilatation of Heart in Mitral Stenosis. A. Goedel.—p. 427.
Effect of Disintegration Products of Cells on Homogenous Cells. W. Gohs.—p. 430.
*Dissemination of Infection in Brain by Brain Puncture. H. Hamperl.—p. 432.
Concretions in Underdeveloped Testis. W. Kreibig.—p. 436.
*Portal of Entry of Virus of Lymphogranulomatosis. R. Paltauf.—p. 437.
Modification of Rokitansky's Method for Postmortem Examination of Heart in Pericardial Adhesion. A. Priesel.—p. 439.
So-Called Adenocystic Fibroma of Ovary. J. Richter.—p. 440.
*Subendocardial Hemorrhages. C. J. Rothberger.—p. 442.
Experimental Diversion of Blood of Splenic Vein into Inferior Vena Cava. F. Silberstein and J. Kretz.—p. 443.
Annular Pancreas. W. Thür.—p. 444.
Exanthemas of Mucous Membrane of Upper Air Passages: A Pathognomonic Symptom of Influenza. R. Wiesner.—p. 445.
Double Spermatic Cord. F. Windholz.—p. 447.

Obstruction of Portal Vein.—Chiari reports the case of a man, aged 53, who was first troubled with spasmodic pains in the epigastric region, in 1914. At that time he was advised to follow a certain diet; the pains gradually disappeared. Up to 1922 he felt no further disturbance. However, since that time he had frequently had pains in the epigastrium. In November, 1928, he had repeated severe attacks of spasmodic pains and vomiting. The vomitus was dark red and the feces were almost black. Examination of the patient revealed a dilatation of the thoracic aorta and a positive Wassermann reaction. Accordingly, the case was diagnosed as aneurysmal dilatation of the aorta, caused by syphilitic mesaortitis. During the following days the condition of the patient became more serious. He appeared to be icteric, and the epigastrium was distended, especially on the right side. Palpation revealed a tumor in the region of the liver. The other abdominal organs were normal. The tumor showed marked pulsation. Several days later, the patient suffered a sudden collapse and died soon after. Postmortem examination revealed obstruction of the main trunk of the portal vein. However, no indication could be found that the obstruction was due to thrombosis. The author assumes that in this case the obstruction was probably caused by chronic pancreatitis. Death was finally caused by hemorrhage, which in turn was due to erosion of a branch of the portal vein.

Primary, Isolated Lymphogranuloma of Intestine.—Although lymphogranulomatosis usually affects the lymphatic system in general, Goedel points out that occasionally only one organ—the spleen, liver, lung, or bone marrow—may be affected. He states that so far comparatively few cases are known in which the disease was limited to the intestinal tract. He gives a detailed report of one case. A man, aged 31, had severe pain in the epigastrium. The condition was diagnosed appendicitis and an operation was performed. However, the appendix showed no changes and could therefore not be considered as the cause of the disease. The part of the ileum near the cecum appeared reddish and swollen and contained hard infiltrations. The cecum was edematous, and the lymph nodes of the ileocecum were dark red, moist and swollen. Parts of the ileum, of the cecum and of the mesentery were removed. Microscopic examination of the specimen revealed lymphogranuloma. The patient died of peritonitis four days after the operation. Postmortem examination showed that the disease was limited to the ileocecal valve. Lymphogranuloma could not be detected in any other organ.

Unusual Form of Dilatation of Heart in Mitral Stenosis.—Goedel describes three cases in which he observed marked dilatation of the left auricle. The enlargement was so pronounced that the remainder of the heart, which was of normal size, appeared like a mere appendage. The author found that the dilatation was not a mere stretching but rather an actual growth. Such cases have been comparatively rare, and

the etiology of these disturbances has not been definitely determined. The author assumes that the simultaneously occurring mitral stenosis has a certain influence; however, it cannot be the only etiologic factor, because, in the reported cases, the mitral stenosis was slight in comparison with the excessive enlargement of the auricle.

Dissemination of Infection in Brain Caused by Brain Puncture.—In the postmortem examination of three patients, who had received surgical treatment for abscess or tumor of the brain, Hamperl noted that the puncture had disseminated infectious material. This had given rise to new abscesses and had caused more serious complications. The author does not discuss the diagnostic or therapeutic value of brain puncture, wishing only to direct attention to the possible serious complications which may eventually be caused by it.

Portal of Entry of Virus of Lymphogranulomatosis.—According to Paltauf, lymphogranulomatosis is now generally considered an infectious disease. Many authorities believe that the virus enters the body by way of the lymph nodes of the pharyngeal cavity. The three cases described by the author give additional proof for this assumption.

Subendocardial Hemorrhages.—In order to determine the cause of subendocardial hemorrhages, Rothberger made experiments on dogs. In previous researches he had observed that aconite often causes subendocardial hemorrhages. He tested strophanthin and several digitalis preparations and found that hemorrhages could be produced in most cases. Stimulation of the vagus or accelerans did not always cause subendocardial hemorrhages in the animals. Nevertheless, the author thinks that a certain relation does exist between the stimulation of the vagus and these subendocardial hemorrhages. Serious disturbances of this nature were also observed in two dogs which were poisoned with phosphorus and in one case of pancreas extirpation. The author thinks that in the latter cases gradual failure of the circulation was the cause of the subendocardial hemorrhage. He also noticed that barium chloride frequently leads to such hemorrhages.

Zeitschrift f. d. ges. Neurol. u. Psychiatrie, Berlin

119: 163-490 (March 20) 1929

Effects of Resection of Right Cerebellar Hemisphere in Man. M. H. Fischer and O. Pötzl.—p. 163.
Mechanism of Sleep. G. Marinesco, O. Sager and A. Kreindler.—p. 277.
Pleohemolytic Reaction in Dementia Praecox. E. von Thurzó.—p. 307.
*Erythrocyte Sedimentation Test in Nervous Diseases. A. P. Friedmann.—p. 335.
*Carbon Dioxide Content of Cerebrospinal Fluid in Paresis. E. Klemperer and M. Weissmann.—p. 351.
*Etiology of Epidemic Facial Paralysis. I. Herzog.—p. 373.
Pathogenesis of Affect Epilepsy. E. Guttmann.—p. 377.
Internal Pneumocephalus Following Skull Fracture. D. Campbell.—p. 481.

Erythrocyte Sedimentation Test in Nervous Diseases.—According to Friedmann a single determination of the erythrocyte sedimentation rate is inconclusive; the test should be repeated several times in each patient. The test is a sensitive indicator of the biochemical changes in the entire organism. It does not give characteristic deviations from the normal in functional disturbances of the nervous system but is modified in the majority of organic diseases of the central nervous system. In all forms of neurosyphilis, particularly in syphilitic meningitis and paresis, the erythrocyte sedimentation is accelerated; in these diseases the test is sometimes of prognostic significance, because with the improvement in the condition of the patient the erythrocyte sedimentation is retarded. In multiple sclerosis the sedimentation time is usually increased. In amyotrophic lateral sclerosis there is a direct relation between the duration of the disease and the erythrocyte sedimentation: the longer the duration of the disease, the greater the acceleration of the sedimentation. In Parkinson's disease, in contrast to Parkinson's syndrome, the sedimentation of the erythrocytes is usually accelerated; this fact is of importance in the differential diagnosis between these two conditions.

Carbon Dioxide Content of Cerebrospinal Fluid in Paresis.—Klemperer and Weissmann noted an increase in the carbon dioxide content of the cerebrospinal fluid in uncomplicated paresis. Malaria therapy in paresis causes a marked decrease in the carbon dioxide content of the cerebrospinal fluid; shortly after the cure the alkalosis of the fluid increases still more, but a few months later, paralleling the clinical and serologic improvement of the patient, the carbon dioxide content of the cerebrospinal fluid becomes normal. Manic patients with paresis, patients with severe circulatory and metabolic disturbances, and some patients with taboparesis do not show an increased carbon dioxide content of the cerebrospinal fluid.

Etiology of Epidemic (Rheumatic) Facial Paralysis.—Herzog believes that some cases of so-called rheumatic facial paralysis are caused by an infection of the salivary glands, particularly the parotid. In these cases the peripheral nature of the paralysis is indicated by the signs of an involvement of the salivary glands (swelling, sensitiveness to pressure, spontaneous pain) as well as by the fact that the other cranial nerves (trigeminal, auditory) do not become involved. The frequent occurrence of such cases is evidence of the epidemic nature of this type of facial paralysis.

Zeitschrift für Urologie, Leipzig

23: 161-240, 1929

*Simple Apparatus for Quantitative Measurement of Sugar in Urine. H. Citron.—p. 161.
*Renorenal Reflex. D. Szenkier.—p. 162.
*Passage of Contrast Solutions from Pelvis of Kidney into Circulation. H. von Sauer.—p. 168.
*Changes in Bacterial Flora of Urethra in Acute Gonorrheal Urethritis. N. Owtschinnikov and E. Ssemenjako.—p. 202.
Ureteral Cystoscope Permitting Elevation of Tip of Catheter. F. F. Leiter.—p. 213.

Simple Apparatus for Quantitative Determination of Sugar in Urine.—Citron describes a small model of the dextrometer which he has used for four years. In his apparatus the amount of sugar in a specimen of urine is determined by the loss of weight of the urine caused by the fermentation of the sugar in it. The apparatus consists of a glass cylinder with an outlet tube a short distance from the top, and a urinometer, to the top of which is attached an indicator arm that projects through a hole in the cover of the cylinder. Enough urine-yeast emulsion is run into the cylinder so that the zero point on the indicator arm is above the level of the cover of the cylinder. Urine-yeast emulsion is then allowed to escape through the outlet tube until the zero point on the indicator arm is on a level with the cover of the cylinder. After a few drops of a tributyrin preparation has been added to prevent excessive fermentation, the apparatus is placed in water heated to from 38 to 40 C. (100.4 to 104.0 F.). The fermentation begins at once and the indicator arm of the hydrometer sinks accordingly. After four hours the amount of sugar that was in the urine-yeast emulsion before fermentation began may be read from the scale.

Renorenal Reflex.—Szenkier explains the renorenal reflex (pain in the healthy but not in the diseased kidney and reflex anuria in disease of only one kidney) on the basis of the inferior mesenteric sympathetic ganglion, which is the only one of the sympathetic ganglions that is in direct communication with both kidneys.

Passage of Contrast Solutions from Pelvis of Kidney into Circulation.—In a clinical and experimental study of the passage of contrast solutions from the pelvis of the kidney into the circulation, von Sauer catheterized both ureters in patients and in dogs and then injected an iodine solution into the pelvis of one of the kidneys. He found that iodine appeared in the blood at once and could be demonstrated in the urine from the other kidney five minutes later. These observations offer an explanation for the general disturbances, such as headache, nausea and vomiting, which appear in some patients following the injection of contrast substances into the pelvis of the kidney in pyelography.

Changes in Bacterial Flora of Urethra in Acute Gonorrheal Urethritis.—Owtschinnikov and Ssemenjako examined microscopically the urethral discharge of seventy patients with acute gonorrheal urethritis, before and after treatment with potassium permanganate solution and with silver nitrate solution. They noted that following the treatment there was present in the discharge a large number of various kinds of bacteria that were not present before the treatment was begun. They believe that these bacteria were carried into the urethra during the irrigation.